

**Body Dysmorphic Disorder: Prevalence among students at a South African university**

**by**

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## Abstract

Body dysmorphic disorder (BDD) is defined as a preoccupation with one or more perceived flaws in appearance which are either not observable or appear only slight to others. This preoccupation is associated with significant levels of distress and dramatically reduced levels of functioning. To date only one previous study has been conducted on the prevalence of BDD in the South African context. The current study examined the prevalence of BDD among 398 students registered for modules within the Humanities faculty at a specific South African university. Further objectives of the study included the examination of differences in prevalence and experienced severity of BDD across variables of gender, race, and sexual orientation; the examination of the presence of an additional diagnostic criterion of BDD as contained in the DSM-5; the exploration of clinical and associated features of BDD as they present in the South African student context; and the exploration of help-seeking behaviour of individuals with BDD in the specific context. Findings indicated a prevalence rate of 3.3% in the non-clinical student sample. No significant differences in BDD prevalence were found across variables of gender and sexual orientation. There was, however, a significant difference in BDD prevalence across racial groups; with the highest prevalence being found in ‘Mixed’ race participants. This finding is limited by the representativeness of the sample. No statistically significant differences were found in the experienced severity of the disorder across variables of gender and race; however homosexual participants who screened positive for BDD indicated significantly greater experienced severity of the disorder than heterosexual and bisexual participants. Furthermore, general appearance concerns were also found to be significantly more severe in homosexual participants than other sexual orientation groups.

*Keywords:* Body dysmorphic disorder; prevalence

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## Chapter 1: Introduction

As the researcher and somebody who has suffered from body dysmorphic disorder myself, I would like to provide a short excerpt of my own experience as a means of introduction to this study. This is a quantitative study and by no means autoethnographic in nature. The reason I would like to provide this excerpt is to further the reader's insight into the nature of this disorder, which is often not fully captured in purely academic, research-based literature.

### *My story – an excerpt*

*“A confident child, always up for the lead role in primary school plays, it was only during my high school mid-adolescent years that my attention started to shift toward aspects of my appearance. Being a non-identical twin, I still vividly recall what were probably intended as innocent remarks made by social peers during this time: “You’re the one with the nice personality. Your brother is the cute one”. I attached significant meaning to such remarks. Attractiveness became associated with acceptance, and not being “the cute one” meant that I was ugly, hideous even. To this day, when others remark on how completely different my twin and I are in terms of appearance, I have to be very careful not to resort to an old, well-rehearsed, maladaptive belief that such a comment could only refer to his idealised attractiveness in comparison to my relative hideousness, rather than referring merely to the very objective observation that him and I are two completely different individuals in terms of physicality.*

*It was during these adolescent years that my torturous love-hate relationship began with the mirror, and in fact any reflective surface. Early concerns were my ‘bandy’ legs, wide hips, and yellow teeth, to name a few. The time spent thinking about these features and examining them in front of the mirror, with the hope of coming to terms with what I was seeing, soon escalated to many hours of my day. The mirror served as the only means of trying to alleviate the anxiety I experienced when thinking about these features. Unfortunately, this was rarely the case, and in most instances I would eventually, usually due to the input of a family member, have to walk away from the mirror feeling more anxious, completely exhausted, disgusted, and hopeless.*

*While I was able to maintain a relatively high level of functioning during my high school years, it was during the early years of my tertiary education that my symptoms, distress, and functional impairment reached entirely new levels. In retrospect I am able to identify a number of factors that contributed to the increasing severity of symptoms during this time. High levels of stress have often aggravated my symptoms, and this was a particularly stressful and demanding time as I had registered for a medical degree. Together with this, my sense of self-loathing was heightened by difficulty I was experiencing coming to terms with and accepting my sexual identity.*

*During this time I was often absent from class, and confined to my room in residence for many days at a time, often not even being able to leave to buy food. I was unable to focus on anything other than my appearance concerns. Able to completely isolate myself, I would spend hours at a time, sometimes entire nights, in front of the mirror in my room. The mirror-checking was now a much more complex, time-consuming, and draining process. If I reached a moment of contentment with what I was seeing, I would attribute it to a change in lighting during the process (e.g. the sun had moved during the time I was in front of the mirror, or the position of the clouds had moved), or my eyes had adjusted to the light and therefore were not seeing what they had first seen when I approached the mirror. This would leave me needing to try and recreate the exact conditions in which I had hated the reflection in front of me. This may have meant waiting until the next day at the exact same time, hoping that weather conditions would be almost identical to face the disgusting reflection. Of course, during the course of waiting for the same conditions, I would encounter 'new' equally disgusting reflections which would also need to be recreated later in similar conditions. The anxiety was immense, and all I longed for was to escape somehow, even if that meant ending my life. I could often hardly breathe after such sessions in front of the mirror and would feel cognitively, emotionally, and physically exhausted. I would also pick at my skin during these sessions, making any blemishes far worse, and often leaving me obsessing about the further damage I had done to an already repulsive appearance.*

*On occasions when I left my room in residence, I would do my best to avoid reflective surfaces of any type (car windows, glass surfaces, shop windows, silver cutlery, people wearing sunglasses, even direct eye-contact where I could see my reflection in people's pupils). This was*

*not always successful, and often the urge to confront the reflection became too strong to resist. In such cases I would often become 'stuck' in a specific context trying to reach an ever elusive sense of contentment. I distinctly remember once being 'stuck' in front of a mall ATM which had a panel of mirror designed to view those behind you while completing a transaction. Having seen my reflection, I stayed until the early hours of the morning, having to continuously walk away and come back to try and keep the rising suspiciousness of the mall security guards at bay.*

*With time it was not only reflective surfaces that somewhat paradoxically posed a highly anxiety-provoking threat as well as an overwhelming, almost impossible to resist, pull for my attention. A similar relationship developed with my shadow, which meant that I would either avoid going out at certain times of the day, based on where the sun was positioned, or have to try and plan routes on campus so that my shadow would fall behind me. It was as if I had developed a heightened sixth sense for any reflective surface, as well as where my shadow was positioned at all times. Wherever I physically positioned myself in any context was based on an almost instinctive sense of all surrounding reflective surfaces, the lighting, and the shadows.*

*An important aspect I'd like to draw attention to, in my own experience of this disorder, is that I was never able to experience any sense of consistency in my appearance. It was as if every reflective surface offered an entirely different representation of my appearance, and it often felt as if my appearance was physically changing from day to day, and often even from moment to moment. This meant an eternal quest to try and reach a 'certain', 'accurate' representation of my appearance that would either confirm or hopefully refute the hideous internalized mental image I held. I strongly believe that, in my case at least, this reflected a very poorly developed sense of self and identity which manifested externally with focus on an 'ever-changing' appearance.*

*As already eluded to, the symptoms of this disorder have often taken an extreme toll on my ability to function in most areas of my life. With relevance to this study, my functioning in the academic context has been severely impacted with periods of deep depression, times of being housebound, high levels of anxiety, a very compromised attentional capacity for external information, general cognitive exhaustion, and feelings of hopelessness all contributing to*

*difficulty in academic performance. This has often left me feeling very incompetent and with a sense that I will never be 'successful' both in this context, and in day to day life.*

*I have always been very secretive about my affliction, partly due to shame and embarrassment, but primarily due to a fear that sharing my concerns with others may elicit a response that confirms the beliefs I have about my appearance. Of course hiding the bizarre, ritualistic behaviours is not easy and also takes immense energy and focus. With time (many years), I have been able confide in those closest to me, who also start to witness the associated behaviours no matter how valiant my attempts to hide them. I am fortunate that insight into the disorder, attained through my psychology education and help sought from mental health care providers, has prevented me from seeking any type of cosmetic procedures. Unfortunately this is not the case for many sufferers.*

*While I am by no means 'cured' of this disorder, I have learnt ways of managing my symptoms that have led to significant improvement in my levels of functioning. I have undergone psychotherapeutic and psychopharmacological interventions, both of which have proven valuable. Insight into my symptoms, what triggers them, and an understanding of the 'purpose' they serve have all been particularly important aspects in coping."*

Body dysmorphic disorder (BDD) is a potentially debilitating psychiatric disorder associated with significant levels of distress, dramatically reduced levels of functioning, as well as a greatly decreased quality of life (Phillips, 2000). This disorder is defined as a preoccupation with one or more perceived flaws in appearance, which are either not observable or appear only slight to others (American Psychiatric Association; APA, 2013a). The focus of preoccupation may be on one or many body areas, most common of which, but not limited to, are the skin, hair or nose (Phillips & Diaz, 1997). These preoccupations are most often intrusive, unwanted, difficult to resist or control, and time-consuming (APA, 2013a). The individual engages in repetitive behaviours or mental acts in response to the preoccupations, such as excessively checking the perceived flaw in the mirror, or continuously comparing the perceived flaw to others perceived as normal or attractive in appearance (APA, 2013a). These behaviors or mental



acts are generally also time-consuming, difficult to resist, and may ultimately increase levels of anxiety experienced by the individual (Phillips & Feusner, 2010).

In order to be diagnosed with body dysmorphic disorder, the preoccupation should cause clinically significant distress or impairment in one's functioning (APA, 2013a). The level of preoccupation, together with associated repetitive behaviours or mental acts, and the experience of distress or functional impairment are all key factors in distinguishing this disorder from 'normal' appearance-related concerns (Phillips & Feusner, 2010).

BDD has been associated with high rates of psychiatric comorbidity (Gunstad & Phillips, 2003). The most common comorbid psychiatric conditions have been found to be depression, social phobia, obsessive-compulsive disorders, and substance use disorders (Gunstad & Phillips, 2003). Research has shown that a greater number of comorbid disorders in an individual with BDD is associated with greater impairment in the individual's functioning (Gunstad & Phillips, 2003). The common occurrence of comorbid disorders in individuals with BDD contributes to high rates of suicidal ideation (Phillips & Menard, 2006). Rates of suicidal ideation and completed suicide have been found to be particularly high in BDD, with findings suggesting completed suicide rates almost 45 times higher than in the general population (Phillips, 2007; Phillips et al., 2005).

Body dysmorphic disorder, even though it is starting to receive increased attention in the field of research, is still understudied in comparison to the many other mental health problems (Rief, Buhlmann, Wilhelm, Borkenhagen, & Brahler, 2006). Mayville, Katz, Gipson, and Cabral (1999) suggest two possible reasons for the lack of empirical research on BDD. The first reason is that BDD was first formally recognized as a separate psychiatric disorder in the *Diagnostic and Statistical Manual of Mental Disorders, Third Edition, Revised* (DSM-III-R; APA, 1987), making it a relatively newly defined disorder in comparison to many other mental disorders (Mayville et al., 1999). The second reason is that reliable measures for the assessment and diagnosis of BDD were not developed until years after its classification in the DSM-III-R (Mayville et al., 1999).

This disorder is very often kept secret by those who suffer from it, contributing to a lack of knowledge on its prevalence (Barlow & Durand, 2005). This is compounded by the fact that individuals suffering from this psychiatric disorder typically seek help from dermatologists or cosmetic surgeons rather than from mental health care professionals, thus leading to an under-representation of BDD in psychiatric populations (Biby, 1998).

Prevalence studies to date have been conducted predominantly in American and European populations with findings indicating that this disorder is not uncommon (Buhlmann et al., 2010; Rief et al., 2006). A significantly higher prevalence of BDD has been found in university student samples than in the general population, suggesting a particular vulnerability in student populations (Bohne, Keuthen, Wilhelm, Deckersbach, & Jenike, 2002; Bohne, Wilhelm, et al., 2002). A number of the studies exploring the prevalence of BDD in student populations, however, have various methodological limitations, including the use of relatively small samples, instruments that do not assess the severity of the disorder, and collection of data in the classroom environment which may have excluded individuals not present (Bartsch, 2007; Bohne, Keuthen, et al., 2002; Bohne, Wilhelm, et al., 2002; Taqui et al., 2008). There is, therefore, a need for empirical studies to further elucidate the prevalence, nature, and functional consequences of body dysmorphic symptoms in populations where there is currently still very limited research.

To date only one study on the prevalence of BDD has been conducted in the South African context (Dlagnekova, 2012). Dlagnekova (2012) exclusively examined prevalence among students at a South African university. The current study has some significant methodological differences to Dlagnekova's study, is conducted at a different South African university, and aims to further explore some of the key features of this disorder and how these features impact students in their academic role functioning. Dlagnekova's findings will serve as a valuable point of comparison for findings in the current study.

While knowledge of the global prevalence of any disorder in specific populations is important, it is also important to examine differences in prevalence across demographic variables within a given population. This allows for the identification of groups of individuals within a population who may be particularly at risk of developing a disorder. With regard to BDD, most prevalence studies conducted to date have only examined gender as a demographic variable, with

largely inconsistent findings (Cororve & Gleaves, 2001). Few prevalence studies have included ethnicity and sexual orientation as demographic variables, and therefore findings in this regard remain very limited (Boroughs, Krawczyk, & Thompson, 2010).

Given the relative paucity of research on BDD in comparison to other mental health problems, this disorder warrants increased attention in the field of research (Rief et al., 2006). The severity of this disorder, its impairment of one's functioning, and its high rates of comorbidity and suicidality further support this need for increased attention. Findings with regard to the prevalence and clinical features of BDD in contexts where there is still limited research, such as the South African context, together with the identification of groups of individuals who may be particularly vulnerable to developing this disorder may ultimately lead to earlier diagnosis, improved options for treatment, and may encourage the need for further research in South Africa on this very serious disorder.

This study aims to examine the prevalence of BDD among students at a South African university with the following specific objectives:

- To examine the prevalence of BDD among students from a South African University using the Body Image Disturbance Questionnaire (BIDQ; Cash, Phillips, Santos, & Hrabosky, 2004) to screen for the presence of BDD. This instrument is based on DSM-IV-TR diagnostic criteria (APA, 1994).
- To examine whether those who screen positive for BDD on the BIDQ also screen positive on an item which addresses an additional diagnostic criterion for BDD as contained in the DSM-5 (APA, 2013a, 2013b), namely that the individual engages in repetitive behaviours or mental acts in response to the preoccupations.
- To examine differences in prevalence and severity of BDD across variables of gender, race, and sexual orientation.
- To explore key clinical features of BDD as they present in the South African context; such as the nature of preoccupations experienced, the nature of distress and functional impairment, and the nature of repetitive behaviours or mental acts engaged in.

- To explore the effect BDD has on one's academic functioning in the university context.
- To explore the avenues whereby sufferers may or may not have sought help.

The contents of this dissertation are as follows:

Chapter 2 reviews recent literature on body dysmorphic disorder. This chapter begins with a discussion of the history of BDD's definition and classification, followed by the disorder's clinical and associated features, demographic features, etiology, commonly associated disorders, and treatment approaches. Thereafter prevalence studies conducted to date, with specific focus on studies conducted in the student context, are presented and discussed.

Chapter 3 presents a cognitive-behavioural and social learning conceptual framework of BDD. These perspectives are perhaps the most widely accepted and empirically supported in understanding the development and maintenance of BDD symptoms. Furthermore, this framework theoretically contextualises and elaborates on the key clinical features of BDD as contained in the DSM-5 (APA, 2013a, 2013b). A number of additionally developed items which form part of the instrument in the current study explore key features of BDD as discussed within this conceptual framework.

Chapter 4 outlines the research methodology of the current study. This includes the research strategy and design, the target population, the sampling, the measurement instruments, the data collection procedure, and the method of data analysis. Adaptations made to the BIDQ (Cash, Phillips, Santos, & Hrabosky, 2004), as well as additional items developed by the researcher, are clearly discussed in terms of the rationale behind their adaptation or inclusion, as well as sources of supporting literature.

In Chapter 5 the findings of the current study are presented with reference to the research objectives outlined above.

Chapter 6 concludes the dissertation with a discussion of the findings in relation to existing literature, an examination of the merits and limitations inherent to the current study, and recommendations for future research based on the findings and limitations of the study.

## Chapter 2: Literature Review

### Introduction

In this chapter existing literature on body dysmorphic disorder (BDD) is reviewed. Firstly the history of BDD's definition and classification is examined. Thereafter a number of aspects of BDD are explored, including clinical and associated features, etiology, co-morbid and closely related disorders, and treatment approaches. Finally, the findings of recent BDD prevalence studies in clinical and community populations are presented and discussed.

### History of Definition and Classification

Body dysmorphic disorder is a relatively new name for a syndrome that has long been referred to in European, Russian and Japanese literature (Phillips, 1991). This syndrome was most commonly referred to as “dysmorphophobia”, a term developed by Morselli in 1886 which literally means “fear of ugliness” (Cororve & Gleaves, 2001). The term “dysmorphophobia” has been used in various ways, but has been generally understood as a subjective experience of feeling ugly or physically defective, to the degree that the individual believes it is noticeable to others, despite being normal in appearance (Phillips, 1991). Despite its appearance in European literature for over a century, this disorder was rarely mentioned in American literature until it was incorporated for the first time into the *Diagnostic and Statistical Manual of Mental Disorders, Third Edition* (DSM-III; American Psychiatric Association; APA, 1980) as an example of an atypical somatoform disorder called dysmorphophobia without specific diagnostic criteria (Fang, Matheny, & Wilhelm, 2014). DSM-III defined dysmorphophobia as a preoccupation with an imagined defect in one's physical appearance that is out of proportion to any physical abnormality that may exist (Phillips et al., 2010).

Body dysmorphic disorder was included as a separate disorder with diagnostic criteria in the DSM-III, *Revised* (DSM-III-R; APA, 1987), still under the somatoform section but now termed ‘body dysmorphic disorder’ (Crerand, Franklin, & Sarwer, 2006). The term dysmorphophobia was noted as an inaccurate description of the disorder due to a lack of phobic avoidance as a core feature of the disorder, and hence the change to ‘body dysmorphic disorder’ (Phillips, 1991). Unlike in DSM-III, DSM-III-R differentiated non-delusional body dysmorphic

disorder from its delusional counterpart which was classified as a psychotic disorder, ‘delusional disorder, somatic type’ (Phillips, 1991).

Put rather simply, non-delusional and delusional beliefs in body dysmorphic disorder may be distinguished by the degree of conviction the individual holds in the belief (Cororve & Gleaves, 2001). In the non-delusional form of the disorder, despite the belief being entrenched and sensible to the individual, the possibility of it not being true can be acknowledged by the individual (Cororve & Gleaves, 2001). In contrast, the delusional form of the disorder is characterized by false beliefs which are fixed and cannot be changed despite any evidence which may indicate the belief is not true (Cororve & Gleaves, 2001). This was considered to be an important distinction based on possible implications for treatment of the disorder (Phillips, 1991). This distinction of delusional versus non-delusional variants of BDD as categorically separate has recently become a contentious issue, particularly in the development of the DSM-5 (Phillips et al., 2010).

The DSM-IV (APA, 1994) and DSM-IV, *Text Revision* (DSM-IV-TR; APA, 2000) show a less clear differentiation between non-delusional and delusional subtypes of body dysmorphic disorder, reflecting the growing consensus at the time that these subtypes may be variants of the same disorder rather than deserving separate diagnostic categories (Crerand et al., 2006). The distinction was decreased in two ways. Firstly, criterion B of the criteria for body dysmorphic disorder as contained in DSM-III-R was removed. This criterion specifically stated that the belief regarding the defective feature/features should not be of delusional intensity, in which case a diagnosis of delusional disorder, somatic type would rather be indicated (Phillips et al., 2010). This meant that no degree of insight into the rationality of one’s beliefs was now necessary for a diagnosis of BDD. Secondly, the possibility of a dual diagnosis of body dysmorphic disorder and its delusional variant was accommodated, meaning that an individual with delusional BDD could be diagnosed with both BDD and delusional disorder, somatic type (Phillips et al., 2010).

This possibility for double-coding was somewhat problematic in that the same set of symptoms could be diagnosed as two different disorders with different treatment regimes (Phillips, Hart, Simpson, & Stein, 2013). The intention of the double-coding possibility, however, was to convey that the non-delusional and delusional variants of BDD may really be

viewed as the same disorder, until such time that additional data could more clearly resolve the issue (Phillips et al., 2013).

Another important change from DSM-III-R (APA, 1987) to DSM-IV (APA, 1994) was the inclusion of a criterion to distinguish normal appearance-related concerns from the preoccupations characteristic of body dysmorphic disorder which cause clinically significant distress or impairment in functioning (Phillips et al., 2010). The DSM-III-R also did not allow for the co-occurrence of body dysmorphic with anorexia nervosa or gender identity disorder, while DSM-IV allowed for the comorbid diagnosis of such disorders but required that body dysmorphic disorder be differentiated from them (Phillips et al., 2010).

With the recent development of DSM-5 (APA, 2013a), a number of issues for consideration were put forward by Phillips et al. (2010) regarding the classification of and the diagnostic criteria for body dysmorphic disorder. Two of these recommendations were of particular importance and resulted in significant changes which are now incorporated into the DSM-5.

Firstly, it was suggested by Phillips et al. (2010) that a new criterion may be necessary to reflect compulsive behaviors often prominent in body dysmorphic disorder. It has been found that nearly all individuals with BDD engage in at least one form of compulsive behaviour (Phillips, et al., 2010). These behaviours are similar to the compulsions in Obsessive Compulsive Disorder (OCD) in that they are repetitive behaviours or mental acts that the individual feels compelled to perform in response to the appearance preoccupations (Phillips et al., 2010). They are time-consuming, difficult to resist, and typically increase levels of distress and functional impairment experienced by the individual (Phillips et al., 2010).

A number of advantages and disadvantages regarding the possible addition of this criterion were discussed by Phillips et al. (2010). Advantages put forward included the following: compulsive behaviours form a key aspect of the clinical picture of BDD and thus require assessment, monitoring, and targeting in the treatment process; such a criterion would aid in increasing diagnostic specificity in BDD; this would also serve to improve differentiation from other similar disorders such as social phobia; this criterion would reflect the relatedness of

BDD and OCD. Potential disadvantages included the following: there are rare cases where individuals with BDD do not report compulsions; there is the chance that those who experience compulsions may not reveal the compulsions to the clinician, hence the diagnosis of BDD may erroneously be overlooked in such cases.

The second important recommendation for DSM-5 involved the issue of delusional versus non-delusional variants of body dysmorphic disorder, and how this should be reflected in the classification of the disorder. This issue was addressed extensively in a separate article by Phillips et al. (2013) where an established base of evidence was discussed, highlighting problems with the diagnosis of delusional BDD as a psychotic disorder (delusional disorder, somatic type), as in DSM-IV. Cases of delusional BDD most often do not meet the criteria for a true delusional disorder based on the duration of delusional periods in relation to concurrent mood episodes (Phillips, McElroy, Keck, Hudson, & Pope, 1994). Degree of insight in individuals with BDD has been found to fluctuate over the course of the disorder, making it difficult to clearly distinguish between the delusional and non-delusional variants as categorically separate (Phillips & McElroy, 1993). The fluctuation of insight commonly seen in BDD is not typical of psychotic disorders where insight impairment is usually more stable (Fang et al., 2014). Another problem with the delusional variant of BDD being classified as a psychotic disorder is that BDD is not typically associated with other psychotic symptoms, and that the ‘delusions’ in BDD are limited only to appearance-related concerns unlike those in other psychotic disorders (Fang et al., 2014).

Findings indicate more similarities than differences between delusional and non-delusional variants across a broad range of features including family history, core symptoms, comorbidity, course of illness, and pharmacologic treatment response (Hollander et al., 1999; Phillips, McElroy, Keck, Hudson, & Pope, 1994; Phillips, Menard, Pagano, Fay, & Stout, 2006). In light of the evidence, Phillips et al. (2013) proposed that BDD’s delusional variant be removed from the psychosis section of the DSM, and that a dimensional insight specifier be added to BDD’s diagnostic criteria. This would allow for delusional BDD to be reflected by a diagnosis of BDD with an ‘absent insight’ specifier.



Given these evidence based recommendations, changes were incorporated into DSM-5's diagnostic criteria and classification of body dysmorphic disorder (APA 2013a, 2013b). A diagnostic criterion has been added describing the repetitive behaviours or mental acts engaged in by individuals with BDD. The delusional variant is no longer diagnosed as a delusional disorder, but rather as body dysmorphic disorder with an absent insight/delusional beliefs specifier. Degree of insight is specified on a continuum as either 'good or fair' (the individual recognizes that the beliefs are definitely or probably not true, or may or may not be true), 'poor' (the the individual thinks that the beliefs are probably true), or 'absent insight/delusional beliefs' (the individual is convinced that the beliefs are true).

A "with muscle dysmorphia" specifier has also been added, where the individual is preoccupied with the idea that his or her body build is too small or insufficiently muscular (APA, 2013a). This reflects growing literature on the diagnostic validity and clinical utility of making this distinction in individuals with body dysmorphic disorder (APA, 2013b). This form of BDD has been found to occur almost exclusively in males (Phillips et al., 2010). Problematic behaviours for such individuals often include time-consuming work-out schedules, carefully controlled diet, and the use of substances such as anabolic steroids in an attempt to get bigger despite appearing normal or even very muscular (Pope Jr, Gruber, Choi, Olivardia, & Phillips, 1997). Given that these potentially damaging behaviours are somewhat specific to this form of BDD, the distinction from normal BDD is important in terms of tailoring treatment for the individual (Phillips et al., 2010).

Body dysmorphic disorder has been recategorised in DSM-5 to appear in the section on obsessive-compulsive and related disorders rather than in the somatoform section where it previously appeared (APA, 2013a, 2013b). This reflects the many overlapping features of BDD and obsessive compulsive disorder (OCD), including similarities in symptoms, assessment scores, comorbidity, and treatment approaches (Cororve & Gleaves, 2001; Fang et al., 2014). The relationship between BDD and OCD will be discussed further under the section on comorbid and closely related disorders.

The *International Statistical Classification of Diseases and Related Health Problems, 10<sup>th</sup> edition* (ICD-10; World Health Organisation, 1992) groups BDD with the somatoform

disorders, but classifies BDD as a type of hypochondriasis. It classifies BDD's delusional counterpart as a type of 'other persistent delusional disorder' (Phillips, 2004). This classification of BDD as a form of hypochondriasis is problematic in that there is no evidence to suggest that BDD and hypochondriasis are the same disorder and should share diagnostic criteria (Phillips et al., 2010). Despite a lack of research directly comparing BDD and hypochondriasis, the core symptoms of BDD involving a preoccupation with one's defective appearance are very different from the belief that one has a serious disease, as in hypochondriasis (Phillips et al., 2010). This has led to a recommendation by Phillips et al. (2010) that ICD-10's diagnostic criteria for hypochondriacal disorder are not suitable for body dysmorphic disorder and hence a need for revision thereof.

Table 2.1

*Classification and diagnostic criteria of body dysmorphic disorder as contained in DSM-III, DSM-III-R, DSM-IV-TR, and DSM-5*

DSM Edition	Classification	Diagnostic Criteria
DSM-III (APA,1980)	Somatoform  Section: Example of atypical somatoform disorder, Dysmorphophobia	No diagnostic criteria.
DSM-III-R (APA,1987, p. 256)	Somatoform  Section: Body Dysmorphic Disorder	A. Preoccupation with some imagined defect in appearance in a normal-appearing person. If a slight physical anomaly is present, the person's concern is grossly excessive.  B. The belief in the defect is not of delusional intensity, as in delusional disorder, somatic type (i.e. the person can acknowledge the possibility that he or she may be exaggerating the extent of the defect or that there may be no defect at all).  C. Occurance not exclusively during the course of Anorexia Nervosa or Transsexualism.

DSM Edition	Classification	Diagnostic Criteria
DSM-IV-TR (APA, 2000, p. 510)	Somatoform Section: Body Dysmorphic Disorder	<p>A. Preoccupation with an imagined defect in appearance. If a slight anomaly is present, the person's concern is markedly excessive.</p> <p>B. The preoccupation causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.</p> <p>C. The preoccupation is not better accounted for by another mental disorder (e.g. dissatisfaction with body shape and size in Anorexia Nervosa).</p>
DSM-5 (APA, 2013, p. 242-243)	Obsessive- Compulsive and Related Disorders Section: Body Dysmorphic Disorder	<p>A. Preoccupation with one or more perceived defects or flaws in physical appearance that are not observable or appear slight to others.</p> <p>B. At some point during the course of the disorder, the individual has performed repetitive behaviors (e.g., mirror checking, excessive grooming, skin picking, reassurance seeking) or mental acts (e.g., comparing his or her appearance with that of others) in response to the appearance concerns.</p> <p>C. The preoccupation causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.</p> <p>D. The appearance preoccupation is not better explained by concerns with body fat or weight in an individual whose symptoms meet diagnostic criteria for an eating disorder.</p>

## Clinical and Associated Features

**Preoccupation with perceived defects in appearance.** Individuals with BDD are obsessed with the belief that there is something wrong with their appearance, even though the perceived flaw is minimal or even non-existent as perceived by others (Phillips, 2004). Self-descriptions of such individuals may range from being unattractive to being hideous or even monster-like in appearance (Phillips, 2004). The focus of concern in individuals with BDD may be on one or many body areas, but most commonly involves perceived facial defects; most common of which, but not limited to, are the skin, hair or nose (Mackley, 2005; Phillips & Diaz, 1997). It has been found that men may become preoccupied with their genitals, height, hair, and body build; while women may report concerns with their hips, legs and breasts (Crerand et al., 2006).

On average individuals suffering from this disorder report concerns with five to seven body parts during the course of the disorder (Crerand et al., 2006). Individuals with BDD may be preoccupied with different body parts at different times, or may be preoccupied with a number of body parts simultaneously (Phillips, 1991). Some concerns presented may be very specific, such as the asymmetry of a particular body part, while other presented concerns may be vague, such as the appearance of a certain body part not being 'right' (Crerand et al., 2006).

These preoccupations are intrusive, time-consuming and difficult to resist (Grant & Phillips, 2005). It has been found that on average these preoccupations consume 3 to 8 hours a day (Phillips, 2004). In severe cases, sufferers may have difficulty thinking about anything else other than their perceived 'defect' (Crerand et al., 2006). Individuals with BDD are often concerned that these defects are very notable to others, and therefore are often the focus of others' attention in social settings (Phillips, 1991). This is believed to result in the appearance-related preoccupation becoming more intense in social situations, where the individual often believes he/she is being scrutinized by others (Cororve & Gleaves, 2001).

Veale et al. (1996) offer an alternative perspective to this, suggesting that the preoccupations experienced by the individual may rather be related to an internal aversion to one's appearance, as oppose to concerns of being negatively evaluated by others. In the

researcher's opinion, these two views may not necessarily be mutually exclusive. A social setting may serve to increase anxiety experienced by the sufferer due to the perceived scrutiny of others, which may in turn heighten the individual's internal aversion to his/her appearance. Fear of rejection, shame, embarrassment, unworthiness, and a sense of being unlovable are all feelings which have often been associated with the appearance preoccupations (Phillips, 2004).

Insight into the accuracy of the beliefs that such individuals hold about their appearance is usually poor, with nearly half of all BDD patients holding beliefs of delusional intensity; that is being completely certain that that they look abnormal and that their view of the 'defect' is completely accurate (Phillips, 2004). As previously mentioned, insight has been found to fluctuate in BDD sufferers over the course of the illness (Phillips & McElroy, 1993).

Delusionality is considered to be one of the most debilitating clinical features of body dysmorphic disorder (Fang et al., 2014). As discussed under the section on classification of BDD, more similarities than differences have been found between groups with the delusional and non-delusional variants of the disorder both demographically and clinically, but it may be that individuals with the delusional variant suffer from a more severe form of the disorder (Fang et al., 2014). Patients exhibiting delusional conviction in their appearance-related beliefs have been found to have significantly greater impairment in their occupational functioning with an increased tendency toward social isolation (Phillips et al., 1994). This is also often accompanied by ideas or delusions of reference, where individuals falsely believe that others are taking special notice of the perceived 'defect' (Phillips, 2004).

**Compulsive behaviours or mental acts.** In response to the preoccupations experienced in BDD, the individual often engages in repetitive behaviors or mental acts, which are also time consuming and may increase levels of anxiety despite their goal of reducing anxiety (Phillips & Feusner, 2010). These behaviours often serve as a means of inspecting, improving, or camouflaging the perceived defect (Crerand et al., 2006). Common behaviours or mental acts include comparison of one's appearance to others, repeated mirror checking, excessive grooming, trying to camouflage the area of concern, seeking reassurance, repetitive touching of the area of concern, seeking cosmetic surgery, and compulsive skin picking (APA, 2013a).

Such behaviours may vary from one sufferer to another. While some individuals may spend hours a day examining their perceived defects in a mirror or other reflective surfaces, others may attempt to avoid reflective surfaces altogether (Crerand et al., 2006). Avoidance behaviours are also typical, such as the avoidance of people, places, or situations where the individual's appearance may be the focus of evaluation (Fang et al., 2014). The amount of time consumed by such behaviours, sometimes several hours each day, has severe implications for one's functioning in various domains (Crerand et al., 2006).

**Suicidality.** Rates of suicidal ideation and completed suicide have been found to be particularly high in BDD (Phillips, 2007; Phillips et al., 2005). Studies have indicated that the rate of suicidal ideation over a lifetime in patients suffering from BDD is as high as 80%, with attempted suicides occurring in up to 25% of patients with BDD (Phillips, 2007). One study of dermatology patients who had committed suicide reported that most of the individuals had acne or BDD (Cotterill & Cunliffe, 1997). In a study on 185 subjects with BDD in the US population it was found that the completed suicide rate was almost 45 times higher than in the general population (Phillips & Menard, 2006). The vast majority of individuals with BDD attribute their suicidal ideation or suicide attempts primarily to their appearance concerns (APA, 2013a).

A more severe lifetime course of BDD together with the presence of comorbid disorders, such as major depressive disorder, have been found to be correlated to rates of suicidal ideation in BDD (Phillips & Menard, 2006). Furthermore, a number of risk factors have been identified in terms of suicidality in BDD including unemployment, psychiatric hospitalizations, poor social support, poor self-esteem, and a history of abuse (Phillips & Menard, 2006).

**Distress and functional impairment.** The significant distress and meaningful impairment in functioning experienced by individuals with BDD can be seen as one of the key characteristics in separating BDD from normal appearance concerns (Fang et al., 2014). Although the level of functioning in patients with BDD has been found to vary, it almost always causes impairment in functioning to a significant degree (Phillips, 2004).

Socially individuals with BDD may become somewhat isolated and may have few or no friends, as well as avoid dating and other forms of social interaction (Phillips, 2004). In severe

cases individuals with BDD may become completely housebound, with one study examining 100 cases of BDD finding that approximately 30% of patients with BDD had been housebound for at least a week, and nearly half of these patients had been psychiatrically hospitalized during the course of the disorder (Phillips et al., 1994).

Academic, occupational, and role functioning is also most often impaired (APA, 2013a). This may be due to the preoccupations, associated behaviors, and levels of self-consciousness which all serve to diminish the individual's concentration and productivity, leading to poor performance (Phillips, 2004). High rates of absenteeism and drop out in the academic context have been found, with approximately 20% of youths reportedly dropping out of school directly attributed to BDD symptoms (APA, 2013a). It is not uncommon for individuals with BDD in the occupational context to stop working altogether (Phillips, 2004).

Findings indicate that patients with BDD experience extraordinarily high levels of perceived stress (DeMarco, Li, Phillips, & McElroy, 1998). Quality of life in patients with BDD has been found to be exceptionally poor (Phillips, 2004). In a study that assessed quality of life in 62 outpatients with BDD, scores were found to be significantly worse in all mental health domains than norms established for the general US population as well as patients suffering from depression, type II diabetes, or a recent myocardial infarction (Phillips, 2000).

**Age of onset and course of BDD.** Age of onset is considered an important clinical feature of psychiatric disorders, and it has been found across a broad spectrum of psychiatric disorders that early age of onset of a disorder is often associated with increased severity of illness as well as higher levels of comorbidity with other psychiatric disorders (Bjornsson et al., 2013). The mean age of onset in BDD has been found to be in late adolescence (Phillips & Diaz, 1997; Veale et al., 1996). In one of the largest studies conducted to date examining demographic characteristics in 200 individuals with BDD, the mean age at onset was found to be 16.4 years, although appearance concerns at a subclinical level were found to occur much earlier with a mean age at onset of 12.9 years (Phillips, Menard, Fay, & Weisberg, 2005). This would suggest a gradual onset of body dysmorphic symptoms when onset of the disorder occurs early in life, although symptom development may also be sudden (Crerand et al., 2006).

Bjornsson et al.'s (2013) study was the first to primarily focus on age of onset and its clinical correlates in BDD. This study used two large samples of participants with BDD (n=184 & n=244) and compared participants with early-onset BDD (age 17 or younger at age of onset) to participants with late-onset BDD. Over 60% of participants in both samples developed BDD before the age of 18. Early onset of BDD was found to be associated with gradual onset of symptoms, increased likelihood of previous suicide attempts, and greater comorbidity with other psychiatric disorders in both samples. It therefore appears that earlier age of onset in BDD is associated with greater illness severity across a range of clinical features. The development of BDD most often occurring during adolescence may be due to body image being central to psychological and interpersonal development during this stage of life (Levine & Smolak, 2002). Further research is needed, however, to establish empirically why BDD usually develops during this stage of life.

BDD tends to be chronic, even though symptom severity and degree of insight may fluctuate over the course of the disorder (Crerand et al., 2006). Complete remission, even with treatment, appears to be rare (Phillips, Pagano, Menard, Fay, & Stout, 2005). This is evident in a four-year follow-up study on course and predictors of course in BDD conducted by Phillips, Menard, Quinn, Didie, and Stout (2013) which found a very low probability (20%) of remission after 4 years, and a greater than 40% probability of full relapse during 4 years after remission of symptoms. This study further indicated that greater severity of symptoms served as a predictor of decreased remission probability. Findings also suggest that longer duration of symptoms decrease the likelihood for partial or full remission, emphasizing a need for early detection (Phillips, Pagano, et al., 2005). These findings demonstrate the typically unremitting course of BDD and the need for enhancement of both the detection and treatment of this disorder through further research (Fang et al., 2014).

## **Etiology**

Various theories and models have been proposed regarding both the development and maintenance of BDD, most of which focus on genetic/neurobiological, psychological, and sociocultural factors (Cororve & Gleaves, 2001; Phillips & Castle, 2002). Many of these theories lack empirical support and are primarily based on case studies, knowledge of body image



development, and clinical experience (Cororve & Gleaves, 2001). Potential etiological factors will now be discussed in terms of the aforementioned factor categories. These categories are by no means mutually exclusive or clearly demarcated; hence contain a number of overlapping factors.

**Genetic and neurobiological factors.** There is some evidence to suggest a genetic component in the etiology of BDD. Phillips, Menard, et al. (2005) examined family history in 200 individuals with BDD and found that BDD occurred in 5.8% of first-degree relatives. This is far higher than BDD rates found in the general population (0.7-1.1%; Phillips, 2001), and would thus suggest that BDD is familial. Elevated rates of BDD have also been found in first-degree relatives of individuals with OCD (Bienvenu et al., 2000). Given the close relatedness of BDD and OCD, which will be discussed in detail under the section on comorbid and closely related disorders, this would offer support to the role of genetics in the development of BDD, as well as a genetic link between BDD and OCD.

The development of BDD has been associated with dysregulation in serotonin and dopamine levels based on patients' therapeutic response to medications which target these neurotransmitters (Hadley, Newcorn, & Hollander, 2002). Cororve and Gleaves (2001), however, caution that making inferences regarding etiology of a disorder based on response to treatment is not logically sound.

Various structural abnormalities in the brain have also been found to be possibly involved in the pathophysiology of BDD (Fang et al., 2014). Some of these findings include volumetric abnormalities in the orbitofrontal and anterior cingulate cortex, caudate nucleus asymmetry, and increased white matter volume in comparison to healthy controls (Atmaca et al., 2010; Rauch et al., 2003). A study by Feusner et al. (2009) examining regional brain volumes and symptom severity in BDD found a significant correlation between symptom severity and the size of the left inferior frontal gyrus and right amygdala. Volumetric differences, however, were not found in these regions in comparison to healthy controls. A number of these findings have suggested pathophysiological mechanisms similar to those in OCD (Fang et al., 2014). An interesting finding, in a study conducted on six patients with BDD who underwent single-photon emission computed tomographic brain scans, was that deficits were evident in the parietal region of the

brain which is thought to be an area of the brain that plays a role in disturbed body image (Carey, Seedat, Warwick, Heerden, & Stein, 2004).

**Psychological factors.** Psychoanalytic explanations of the development of BDD are centered on the unconscious displacement of sexual or emotional conflicts, underpinned by feelings of inferiority and guilt, onto an external body part (Phillips, 1991). Put more simply, the internal psychological difficulties are thought to be displaced to the external physicality of the individual. There is, however, no empirical evidence to support this theory (Crerand et al., 2006). In the researchers opinion this makes it particularly important to study the prevalence of BDD across a broad range of demographic variables, for example sexual orientation. Findings of higher prevalence in sexual minority groups, who may have experienced more difficulty in the establishment and acceptance of sexual identity, could serve to support the theory that displaced sexual conflict could play a role in the development of BDD. It is important that such theories are not dismissed due to lack of empirical support. In this regard, qualitative studies exploring the life histories of individuals with BDD with specific reference to common conflicts or psychological difficulties experienced could prove valuable.

Social learning perspectives stress the importance of early learning experiences and classical conditioning in childhood which may serve to reinforce maladaptive beliefs concerning appearance and the value of attractiveness (Neziroglu, Khemlani-Patel, & Veale, 2008). Similarly developmental models have focused to differing degrees on early childhood experiences, as well as on biological predispositions and psychological vulnerabilities (Rosen, 1996; Veale et al., 1996). Veale et al. (1996) suggested that biological factors may predispose individuals to low self-esteem and fears of rejection especially during adolescence when BDD typically develops. Rosen (1996) focused on psychological vulnerabilities which may serve to enhance self-consciousness during adolescence, such as negative self-esteem and shyness. In both of these developmental models critical or traumatic events, such as being teased about appearance, are thought to increase the likelihood of developing BDD (Rosen, 1996; Veale et al., 1996).

Cognitive-behavioural theories and models which have highlighted mechanisms involved in both the development and maintenance of BDD symptoms are perhaps the most established of

the various psychological theories and have received the most empirical support (Cororve & Gleaves, 2001; Fang et al., 2014). These theories have served to integrate various etiological aspects such as biological predispositions, cultural factors, early childhood experiences, and psychological predispositions as all playing a role in the development and maintenance of BDD (Veale, 2004; Wilhelm, Phillips, & Steketee, 2013). Cognitive factors thought to play a role include unrealistic attitudes and maladaptive beliefs regarding appearance based on a drive for symmetry and perfection, selective attention, negative appraisals of body image, heightened self-monitoring, and aesthetic sensitivity (Buhlmann & Wilhelm, 2004; Veale, 2004; Veale, Ennis, & Lambrou, 2002). Such cognitive factors give rise to anxiety and/or other negative emotions, which in turn may lead to the maladaptive behaviors associated with BDD as a means of reducing levels of distress (Veale, 2004).

Various cognitive biases which have been empirically established in individuals with BDD offer support to cognitive behavioural models of BDD, for example a study which indicated selective attentional bias for emotional words with positive or negative valences in comparison to neutral words in an emotional Stroop paradigm (Buhlmann, McNally, Wilhelm, & Florin, 2002). It has also been found that individuals with BDD have a higher tendency to negatively interpret ambiguous body-related and social information than individuals with OCD and other participants (Buhlmann et al., 2002). Individuals with BDD tend to over-focus on detail, supporting the aspect of selective attention in cognitive behavioral models, where an individual may focus exclusively on minor flaws in appearance while ignoring global aspects of appearance (Deckersbach et al., 2000).

**Sociocultural factors.** Sociocultural theories on the development of BDD focus on the social histories of patients with BDD (Crerand et al., 2006). Unharmonious family backgrounds, such as being raised in a family that is rejecting, neglectful, or particularly critical in relation to physical appearance may contribute to the development of BDD (Phillips, 1991, 1996). Being teased by others about one's appearance, particularly during adolescence when one is undergoing numerous physical and psychological changes, may play an important role in the development of BDD (Crerand et al., 2006). This is important, especially given that this is the typical period of onset of BDD symptoms (Phillips, Menard, et al., 2005). Being teased about one's appearance

may cause one to question the normality of one's appearance, and begin to reinforce maladaptive beliefs central to cognitive-behavioural models of BDD.

Cultural factors are generally thought to play a role in both the development and maintenance of BDD, with particular reference to social and cultural attitudes that place emphasis on the importance of appearance and attractiveness (Cororve & Gleaves, 2001). In a sociocultural sense, less than perfect attributes are often viewed very negatively (Biby, 1998). An increasing emphasis on the importance of physical perfection in the media is a particularly pertinent sociocultural factor which may contribute to both general body image dissatisfaction as well as the specific appearance-related preoccupations in BDD (Heinberg, 2001; Phillips, 1996). These factors are evident in features of BDD involving the comparison of one's appearance to that of others or an idealized standard, and an emphasis on social feedback (Cororve & Gleaves, 2001). It has been suggested that cultural factors may play a role in determining the body parts of concern and the expression of BDD symptoms because of variations in aesthetic standards of beauty across cultures (Bernstein, Lin, & McClellan, 1982).

### **Comorbid and Closely-related Disorders**

To aid in the conceptualization of comorbidity in BDD, comorbidity may be divided into primary and secondary forms allowing one to distinguish between cases where BDD is the primary presenting problem from cases where BDD symptoms are found to occur secondary to another psychiatric disorder (Oosthuizen & Castle, 1998). In cases considered to be primary BDD it has been found that comorbidity is almost universal (Perugi et al., 1997).

Gunstad and Phillips (2003) conducted a study examining axis I comorbidity in 293 patients with BDD and found that comorbidity was common, with a mean of more than two lifetime DSM axis I comorbid disorders. The most common comorbid disorders found were depression, social phobia, obsessive compulsive disorder, and substance use disorders. While social phobia was found to typically develop before the onset of BDD, depression and substance use disorders were found to usually develop after the onset of BDD. High rates of comorbidity with these disorders suggest that their co-occurrence may not be random, but rather due to aspects such as shared etiology, symptom nonspecificity, or shared underlying dimensions such

as neuroticism (Gunstad & Phillips, 2003). It was also found that a greater number of comorbid disorders was correlated to greater impairment in one's functioning in various domains (Gunstad & Phillips, 2003). With regard to the presence of DSM axis II disorders in patients with BDD, it has been found that Cluster C personality disorders such as avoidant and obsessive-compulsive personality disorders are most common (Neziroglu, McKay, Todaro, & Yaryura-Tobias, 1996). These findings suggest the importance of examining and understanding comorbidity in BDD due to the prognostic and treatment implications thereof, and therefore a need for further research in this field.

**Body dysmorphic disorder and Obsessive-compulsive disorder.** As discussed under the section on definition and classification of BDD, BDD is now classified under the section on obsessive-compulsive and related disorders in the DSM-5 (APA, 2013a, 2013b), reflecting the numerous overlapping features of BDD and Obsessive-compulsive disorder (OCD), as well as high rates of comorbidity (Cororve & Gleaves, 2001; Fang et al., 2014). These various overlapping features, as well as important differences between these disorders, will now be discussed in more detail.

Rates of comorbidity in BDD and OCD have been found to be as high as 30%, with both disorders responding to Serotonin Re-uptake Inhibitors (SRIs) as the psycho-pharmacological treatment of choice (Phillips, McElroy, Hudson, & Pope, 1995; Storch, Abramowitz, & Goodman, 2008). It has been found that individuals with either BDD or OCD show similar cognitive biases such as heightened levels of perfectionism and a preference for symmetry (Chosak et al., 2008). Furthermore, key clinical features have been found to be similar such as similarities in the need to carry out various repetitive checking behaviors, as well as the avoidance of particular situations which may serve to trigger distress (Chosak et al., 2008). Preliminary research suggests that there may be similarities in the underlying neurobiology of these disorders (Feusner et al., 2010; Phillips et al., 2010), and elevated rates of BDD have been found in first-degree relatives of individuals with OCD (Bienvenu et al., 2000).

Despite these striking similarities, there are also a number of differences between BDD and OCD. It has been found that individuals with BDD are less likely to be married, more likely to be unemployed, show higher rates of suicidal ideation, and have higher rates of comorbidity

with major depression and substance use disorders than individuals with OCD (Frare, Perugi, Rufollo, & Toni, 2004; Phillips et al., 2007). A comparative study of insight in these two disorders revealed that both global insight and its individual components are poorer in individuals with BDD than in OCD (Phillips et al., 2012).

**Body dysmorphic disorder and Social phobia.** Rates of comorbidity have been found to be high with regard to BDD and social phobia, as demonstrated by a large study of 293 participants with BDD where 37% of participants were found to have a lifetime comorbid diagnosis of social phobia (Gunstad & Phillips, 2003). This is not surprising given that BDD and social phobia share a number of overlapping features (Kelly, Dalrymple, Zimmerman, & Phillips, 2013). Both disorders are characterized by a fear of negative evaluation in social situations and the avoidance of social interactions, with heightened levels of social anxiety (Pinto & Phillips, 2005; Veale, Kinderman, Riley, & Lambrou, 2003). In BDD, however, this social avoidance is specifically related to anxiety that the individual's perceived physical 'defects' will be negatively evaluated by others (Kelly, Walters, & Phillips, 2010). The social anxiety and avoidance experienced by individuals suffering from these disorders often leads to poor social and occupational functioning characteristic of both disorders (Kelly et al., 2010; Schneier et al., 1994). Both disorders share a cognitive bias to interpret ambiguous social information as hostile and threatening (Amin, Foa, & Coles, 1998; Buhlmann, Etcoff, & Wilhelm, 2006) and an increased tendency for negative self-focused thoughts (Hoffmann & Barlow, 2002; Veale, 2004).

There are, however, a number of important differences between these two disorders (Kelly et al., 2013). The time consuming and repetitive behaviours in response to preoccupations in BDD (as previously discussed under the section on clinical features) are not characteristic of social phobia (Kelly et al., 2013). Kelly et al. (2013) specifically aimed to compare demographic and clinical features in BDD and social phobia. Findings indicated that participants with social phobia typically had a significantly earlier age of onset and lower educational attainment than participants with BDD. Other important findings included BDD participants being less likely to ever marry, having an increased likelihood of being psychiatrically hospitalized, and having significantly lower mean global assessment of functioning (GAF) scores than individuals with social phobia. Differences were also found in the patterns of comorbidity in these disorders, with

BDD participants being more likely to have a comorbid obsessive-compulsive disorder or eating disorder and social phobia participants being more likely to have a comorbid non-OCD anxiety disorder (Kelly et al., 2013).

Future studies are still needed to compare these disorders across a broader range of variables, as well as to investigate the etiological pathways of the two disorders in order to establish differences between individuals who develop social phobia prior to the onset of BDD versus those where the onset of BDD occurs prior to the onset of social phobia (Kelly et al., 2013). This may lead to improved treatment options which could target both the distinctive and shared features of these two closely related disorders.

### **Treatment Approaches**

Research indicates that certain pharmacologic and non-pharmacologic interventions have been successful in treating BDD (Phillips, 2002; Phillips & Hollander, 2008; Veale, 2010) There is, however, a lack of information regarding the relative efficacy of these treatment approaches (Fang et al., 2014). Further investigation is needed into the efficacy of combination treatments as well as factors which may moderate response to treatment (Fang et al., 2014). What follows is a discussion of the various treatment approaches, including pharmacologic treatments, non-pharmacologic treatments, combination therapies, and surgical/nonpsychiatric treatments.

**Pharmacologic treatment.** In a number of studies examining the effect of Serotonin Reuptake Inhibitors (SRIs) in the treatment of BDD there have been improvements in BDD symptoms, with response rates ranging from 53% to 73% (Perugi et al., 1996; Phillips, 2006; Phillips, Albertini, & Rasmussen, 2002; Phillips, Dwight, & McElroy, 1998; Phillips & Najjar, 2003). Non-SRI anti-depressants have not been found to have the same level of efficacy as SRIs in the treatment of BDD (Hollander et al., 1999; Hollander et al., 1994). Thus, SRI medication is considered the first-line of pharmacotherapy in the treatment of BDD. Evidence indicates that individuals with BDD may require higher than average doses (Phillips & Hollander, 2008). This needs to take into consideration how well the patient is able to tolerate the medication. It has been recommended that higher doses of SRIs may be given to patients who tolerate the medication well but have only partially responded to the highest recommended dose (Phillips &

Hollander, 2008). There is very little available research on the augmentation of SRI treatment in BDD. This should be considered an important area of future research, given that a significant percentage of patients do not show adequate response to SRIs (Fang et al., 2014).

**Non-pharmacologic treatment.** Cognitive behavioural therapy (CBT) has gained the most empirical support in the treatment of BDD and has been found to be an effective psychological treatment (Veale, 2010). There are a number of core components to CBT treatment of individuals with BDD. These include psychoeducation, motivational enhancement, cognitive restructuring, in vivo exposures and response prevention, perceptual mirror retraining, and relapse prevention (Veale, 2001; Wilhelm, Phillips, Fama, Greenberg, & Steketee, 2011; Wilhelm et al., 2013). Psychoeducation involves the therapist explaining the CBT model to the patient and tailoring a specific model for the patient based on factors pertinent to the patient's development and maintenance of BDD symptoms. In cognitive restructuring, maladaptive beliefs are evaluated in terms of accuracy with the aim of developing more accurate and adaptive beliefs. Exposure and response prevention involves the exposure of the patient to anxiety-provoking situations without allowing ritualistic responses such as mirror checking or avoidance, but rather allowing the anxiety pass on its own. During perceptual and mirror retraining patients learn to describe their appearance in an objective, non-judgemental ways while standing in front of a mirror, with the aim of changing the way the patient typically relates to the mirror. Working on relapse prevention helps the patient maintain therapeutic progress over the long term (Veale, 2001; Wilhelm et al., 2011; Wilhelm et al., 2013).

A new form of modular CBT has recently been pilot tested with promising results (Wilhelm et al., 2011). This targets the heterogeneous nature of BDD by supplementing core components of CBT with modular interventions, such as skin picking and hair plucking modules, muscularity and shape/weight modules, and cosmetic treatment modules (Wilhelm et al., 2011).

**Combination therapies.** There is currently no research directly comparing the efficacy of pharmacotherapy versus CBT in the treatment of BDD, nor is there research on the efficacy of pharmacotherapy and CBT as monotherapies versus being used in combination (Fang et al., 2014). One study found a significantly greater efficacy for CBT versus medication, however a number of participants were on a standardized regime of medication when undergoing CBT



intervention (Williams, Hadjistavropoulos, & Sharpe, 2006). This would have confounded the true effect size of CBT when employed as monotherapy.

**Surgical and non-psychiatric treatments.** Given that a large majority of BDD sufferers hold strong delusional convictions that appearance flaws are real and physical rather than a psychological disorder, many seek cosmetic or dermatologic treatment as oppose to psychological or pharmacologic treatment (Fang et al., 2014). Phillips, Grant, Siniscalchi, & Albertini (2001) found that among 289 individuals with BDD, 76.4% had sought non-psychiatric medical treatment and surgery. Such treatments may provide tempory relief but the effects are rarely long lasting. This is shown by data indicating that only 2.3% of individuals with BDD who received surgical or minimally invasive procedures showed improvement in symptoms in the longer term (Crerand, Menard, & Phillips, 2010).

**Barriers to treatment.** Buhlmann (2011) examined barriers to treatment of BDD in a sample of 172 individuals with self-reported BDD and found that only 23.3% of participants had been diagnosed by a mental health care provider, and less than 20% were receiving psychosocial or psychotropic treatment. Some reasons for not seeking treatment provided by participants included shame, inability to find a treatment provider nearby, and the belief that cosmetic surgery or dermatologic treatments were the only treatments that could help. This is very concerning and speaks of a need for increased awareness and improved treatment options in mental health care and medical settings, particularly in populations where this disorder has received little attention, such as the South African context.

### **Prevalence of Body Dysmorphic Disorder**

BDD is believed to be both underdiagnosed and underrepresented because individuals with BDD are often secretive about their symptoms and therefore reluctant to seek psychiatric treatment (Neziroglu & Yaryuru-Tobias, 1997; Phillips, 1991). There has been considerable variation in reported prevalence rates (Cororve & Gleaves, 2001). Prevalence differences across the variable of gender, the most commonly examined demographic variable, have also shown considerable inconsistency. Some studies report a higher prevalence in men, others a higher prevalence in women, and some suggest relatively equal rates across gender (Biby, 1998;

Cororve & Gleaves, 2001; Hollander, Cohen, & Simeon, 1993). Some of these differences in findings can perhaps be explained by factors such as referral bias, inclusion/exclusion criteria, and reported severity of illness (Cororve & Gleaves, 2001). This calls for large-scale epidemiological studies which still remain limited at this point in time.

The DSM-5 (APA, 2013a) cites point prevalence among US adults as 2.4%, with a 2.5% prevalence rate in females and 2.2% prevalence rate in males. Prevalence outside of the United States, with specific reference to Germany, is cited as 1.7-1.8% with similar gender differences. Furthermore prevalence rates of 9-15% among dermatology patients, 3-16% among cosmetic surgery patients, 8% among adult orthodontia patients, and 10% among oral or maxillofacial surgery patients are cited. This gives a rather limited account of prevalence, particularly in parts of the world other than the US.

In this section the researcher will provide a brief overview of recent prevalence findings in clinical populations, followed by a more extensive review of recent prevalence findings in community samples. The sub-section on community prevalence rates will focus on prevalence studies conducted in student populations, which not only form the bulk of community studies but are also most relevant to this study. Differences across demographic variables studied will be discussed, with particular reference to variables of gender, race, and sexual orientation. Limitations of pertinent studies will also be discussed.

**Prevalence in clinical populations.** Recent BDD prevalence findings in psychiatric populations (both inpatients and outpatients) have ranged from 0.8% to 16% (Conroy et al., 2008; Dyl, Kittler, Phillips, & Hunt, 2006; Kollei et al., 2011; van der Meer et al., 2011; Vinkers, Van Rood, & Van der Wee, 2008). The largest of these studies were conducted by van der Meer et al. (2011) on a sample of 3798 outpatients, and Vinkers et al. (2008) on a sample of 5848 outpatients. These studies found prevalence rates of 1.98% and 0.8% respectively. Given that these studies were conducted on complete hospital outpatient populations, they are highly representative of the specific populations being studied. The highest prevalence rate found was in a study conducted on a sample of 100 psychiatric inpatients where a prevalence of 16% was found (Conroy et al., 2008). Given the relatively small sample used in this study, this finding should be interpreted with caution.

Recent prevalence studies conducted on samples of dermatology and cosmetic surgery patients have found rates ranging from 12.1% to 33% (Calderon et al., 2009; Conrado et al., 2010; Picavet, Prokopakis, Gabriels, Jorissen, & Hellings, 2011). The highest rate of 33% was found in a study conducted on 226 rhinoplasty patients (Picavet et al., 2011). This is not surprising given that the nose is one of the most common foci of concern in patients with BDD (Mackley, 2005; Phillips & Diaz, 1997).

**Prevalence in community populations.** The term ‘community populations’ refers here to non-psychiatric or non-clinical populations. These studies are particularly pertinent in studying the prevalence of BDD given that individuals suffering from BDD often do not present for help in the psychiatric context (Neziroglu & Yaryuru-Tobias, 1997; Phillips, 1991). The large majority of community studies have been conducted in student populations, where there appears to be a higher prevalence of BDD than in the general population (Bartsch, 2007; Bohne, Keuthen, et al., 2002; Bohne, Wilhelm, et al., 2002; Boroughs et al., 2010; Cansever, Uzan, Donmez, & Ozsahin, 2003; Dlagnekova, 2012; Taqui et al., 2008; Zhu & Deng, 2010).

Beyond the studies conducted on student populations, which will be discussed in more detail in the subsection below, three large nationwide studies have been conducted in America and Germany (Buhlmann et al., 2010; Koran, Abujaoude, Large, & Serpe, 2008; Rief et al., 2006). Buhlmann et al. (2010) and Rief et al. (2006) conducted nationwide studies in Germany and found very similar prevalence rates of 1.8% and 1.7% respectively. Both samples consisted of approximately 2500 adult males and females. Koran et al. (2008) conducted a nationwide study of 2048 adult male and females in America and found a slightly higher prevalence rate than the German studies of 2.4%. This is interesting and may offer support to the role that culture may play in prevalence rates of BDD.

***Prevalence among students in university populations.*** Studies conducted to date on the prevalence of BDD in university populations are summarized in Table 2.2. This includes a brief sample description, prevalence rate found, and the instrument used to screen for the presence of BDD.

Table 2.2

*Summary of BDD prevalence studies conducted in student populations*

Researchers	Sample	Prevalence	Instrument
Taqi et al. (2008)	Pakistani Medical Students (n=156)	5.8%	Body Image Disturbance Questionnaire (BIDQ)
Bohne, Wilhelm, et al. (2002)	German Psychology Students (n=133)	5.3%	Body Dysmorphic Disorder Questionnaire (BDDQ)
Dlagnekova (2012)	Undergraduate South-African inner-city University Students (n=395)	5.1%	Body Image Disturbance Questionnaire (BIDQ)
Zhu and Deng (2010)	Chinese Students from 5 universities (n=2463)	4.95%	self-design scale, Body Dysmorphic Disorder Scales (BDDS)
Boroughs, Krawczyk, and Thomson (2010)	American Students (n=1041)	4.9%	Body Dysmorphic Disorder Examination, Self-report (BDDE-SR)
Cansever,Uzun, Donmez, and Ozsahin (2003)	Turkish Female Students (n=430)	4.8%	Some items of Body Dysmorphic Disorder Examination (BDDE)
Bohne, Keuthen, et al. (2002)	American Students (n=101)	4%	Body Dysmorphic Disorder Questionnaire (BDDQ)
Bartsch (2007)	Australian Students (n=619)	2.3%	Body Dysmorphic Disorder Questionnaire (BDDQ)

Prevalence findings in student samples have ranged from 5.8% in a sample of 156 Pakistani medical students (Taqi et al., 2008) to 2.3% in a sample of 619 Australian students (Bartsch, 2007). While the prevalence rate attained in Bartsch's (2007) study is significantly lower than studies in other parts of the world, it was found that 62% of participants were significantly concerned with aspects of their appearance despite not meeting the criteria for a diagnosis of BDD.

One can see that sample sizes have varied significantly, from 101 student participants in the study conducted by Bohne, Keuthen, et al. (2002), to 2463 student participants in the study conducted by Zhu and Deng (2010). Sample size is important when one considers the generalisability of the findings, and thus can be viewed as a significant limitation in a number of the studies outlined above with relatively small samples (Bohne, Keuthen, et al., 2002; Bohne, Wilhelm, et al., 2002; Taqui et al., 2008).

The Body Dysmorphic Disorder Questionnaire (BDDQ; Phillips, 1996), used in a number of studies outlined above (Bartsch, 2007; Bohne, Keuthen, et al., 2002; Bohne, Wilhelm, et al., 2002), is limited in assessing the severity of BDD symptoms due to items which only allow for dichotomous yes/no responses (Cash, Phillips, Santos, & Hrabosky, 2004). The current study aims to assess both differences in prevalence and experienced severity of BDD across demographic groups.

Furthermore, all of the studies outlined above, except for the study by Boroughs et al. (2010), accessed participants in the classroom environment. This would have excluded individuals who were not present in the classroom setting. Given that individuals with BDD exhibit high rates of absenteeism (APA, 2013a), use of online sampling may better serve to access the majority of participants with BDD.

***Prevalence among male and female students in university populations.*** Findings regarding differences in BDD prevalence across gender have shown considerable variability and remain largely inconclusive. A number of studies comparing male and female prevalence rates of BDD among university students have shown a significantly higher prevalence in female students compared to male students (Bartsch, 2007; Bohne, Wilhelm, et al., 2002; Boroughs et al., 2010;

Taqui et al., 2008). Taqui et al. (2008) found that female Pakistani medical students were 7 times more likely to be affected by BDD than male Pakistani medical students. Bohne, Wilhelm, et al. (2002) found that, of those German university students who could be classified as having BDD, 71.4% were female students and 28.6% were male students. Furthermore, Bartsch (2007) found that, of the 14 Australian university students who met the criteria for BDD, 86% were female and 14% were male. These findings may be misleading. One needs to take into consideration the representation of male and female students in these studies, where the number of female participants was significantly higher than male participants.

Other studies have found that male and female students may be affected somewhat equally by BDD (Dlagnekova, 2012; Zhu & Deng, 2010). Dlagnekova's (2012) study examined prevalence of BDD across gender in a sample of students at a different South African university to the current study and found no significant differences. Zhu and Deng (2010) also found that males and females were equally affected by BDD in a very large sample of Chinese students drawn from five universities. It seems then that the general trend of research findings in student samples is that there is either a higher prevalence among female students than male students, or a very similar prevalence among male and female students.

*Prevalence among different racial groups in university student populations.* Few studies have focused on the prevalence of BDD among different racial groups in student populations. Bartsch (2007) and Boroughs et al. (2010) found BDD to be most prevalent among white students in Australian and American samples respectively. In contrast to these findings, Dlagnekova (2012) found no significant differences in BDD prevalence across racial groups in a sample of South African students.

Although not specifically a prevalence study of BDD, Picton (2007) studied body image amongst male students in the South African context. Picton found that different racial groups exhibit different trends with regard to body image, despite having similar conceptions of society's ideal body image. This is an interesting finding, and in the researcher's opinion, supports the need to further examine prevalence of BDD among different racial groups in the South African context.

### *Prevalence among different sexual orientation groups in university student*

*populations.* Research on BDD prevalence differences based on sexual orientation remains very limited. Boroughs et al. (2010) included sexual orientation as a variable in their prevalence study and reported a higher prevalence in gay and lesbian students than in heterosexual students. This finding, however, was not statistically significant. Similarly, Dlagnekova (2012) found a higher prevalence of BDD in homosexual than heterosexual students but this finding also did not meet the cut-off for statistical significance.

### **Conclusion**

The classification of BDD has undergone a number of revisions since its first appearance in DSM-III. The current classification and criteria of BDD, as included in DSM-5, is informed by a much more substantial evidence base as a result of this disorder gradually receiving increased attention in the research field. This increase in attention is warranted given BDD's debilitating clinical features, high rates of comorbidity with other psychiatric disorders, and increased rates of suicidality.

A number of etiological factors in the development of BDD have been identified, however further empirical support is still needed for many of these factors. It appears that the most effective current treatment regime in BDD is the psychopharmacologic use of SRIs together with CBT as a psychotherapeutic approach. Unfortunately, given the associated shame and secrecy in BDD, together with the often delusional conviction in beliefs that the perceived flaws in appearance are real, many individuals suffering from this disorder do not present in the psychiatric context.

Higher prevalence rates of BDD have been found in student samples than in the general population, suggesting a particular vulnerability in this population. A number of these studies have various methodological limitations. While gender has often been included as a demographic variable of study with largely inconsistent findings, few studies have included race and sexual orientation as demographic variables.

## **Chapter 3: A Cognitive Behavioural and Social Learning Conceptual Framework of Body Dysmorphic Disorder**

### **Introduction**

The rationale for extensively discussing cognitive behavioral and social learning theoretical conceptualizations of BDD in a separate chapter lies in a number of factors as relevant to the current study. These perspectives are perhaps the most widely accepted and empirically supported in understanding the development and maintenance of BDD symptoms (Cororve & Gleaves, 2001; Fang et al., 2014). They offer an understanding of how the key clinical features of BDD, as outlined in the literature review, relate to one another and are maintained. These clinical features form the basis of the DSM diagnostic criteria, on which this study has operationalised BDD to measure its prevalence. Evidence has also shown that cognitive behavioural therapy is an effective psychotherapeutic approach in the treatment of BDD (Veale, 2010). Cognitive behavioural models are thus valuable in informing and advancing the current psychotherapeutic treatment of choice. Furthermore, some additional items developed by the researcher to include in the instrument utilized in the current study were informed by aspects outlined within these conceptual frameworks. The findings on these items are discussed in relation to the conceptual frameworks presented in this chapter in Chapter 6.

The conceptual models which will form the basis of this chapter were put forth by Veale (2004) and Neziroglu, Roberts, and Yaryura-Tobias (2004). These models are specific to the development and maintenance of BDD, but incorporate a number of aspects of Cash's (2002, 2008) general cognitive social learning model of body image disturbance. Cash's model focuses on historical factors (e.g. interpersonal experiences, cultural socialization, and personality attributes) and the role such factors play in the development of perception and attitudes relating to body image. These perceptions and attitudes are proposed to elicit specific emotions and behaviours which are maintained through a process of negative reinforcement.

Neziroglu et al.'s (2004) model places emphasis on the role of evaluative conditioning, operant conditioning, and relational frames in the development of maladaptive beliefs associated



with BDD. Veale's (2004) model places emphasis on attentional biases, effortful cognitive processes, and the role of imagery in individuals with BDD.

### **A Cognitive Behavioural Model of BDD based on Classical (evaluative) and Operant Conditioning**

**Childhood operant conditioning.** In this model early childhood experiences that serve to offer an individual positive reinforcement based on physical appearance are viewed as playing an important role in the development of BDD (Neziroglu et al., 2008). This is supported by clinical interviews which were conducted with individuals with BDD where a large proportion of participants reported that physical appearance was one of the most central factors reinforced during their childhoods (Neziroglu et al., 2004). Experiences which serve to evaluate the individual based on appearance rather than on other aspects, such as behaviour, result in the development of maladaptive beliefs around the ultimate importance of appearance (Neziroglu et al., 2008).

Negative early experiences may also play a role in the development of BDD within this framework (Neziroglu et al., 2008). Significantly higher incidences of sexual and emotional abuse have been reported in individuals with BDD (Didie et al., 2006). Other 'traumatic' experiences associated with increased attention on appearance include accidents resulting in scarring or skin conditions such as acne (Neziroglu et al., 2008). Aversive early experiences such as bullying, neglect, or teasing may condition the individual to experience the same associated negative affect when observing particular body parts later in life (Osman, Cooper, Hackmann, & Veale, 2004). Peer teasing has been found to be positively correlated with body dissatisfaction, even as early as primary school (Smolak, 2002). Adolescence poses a particularly vulnerable stage, as overall physical appearance seems to be the most significant factor in global self-esteem during this time (Levine & Smolak, 2002).

These childhood experiences, as discussed above, are proposed to play a significant role in the development of core beliefs which emphasize the value of attractiveness. Such beliefs are viewed as integral to the development of BDD later in life (Neziroglu et al., 2008).

**Social learning.** Social learning takes place through the observation of others receiving either negative or positive reinforcement for certain beliefs or behaviours (Bandura, 1977). Within Neziroglu et al.'s (2004) model, individuals may learn that physical attractiveness is integral in attaining certain rewards. The idea that one needs to be physically attractive to attain certain things in life (e.g. a partner, success) is strongly reinforced by the media and popular culture (Neziroglu et al., 2008). An individual's family may also play an important role in the development of beliefs around body image. Rieves and Cash (1996) found an association between attitudes held by both mother and daughter regarding body image. Sibling social comparisons were also found to be pertinent in influencing one's self-appraisal of appearance.

**BDD symptom development through classical and evaluative conditioning.** Classical conditioning and evaluative conditioning are terms which are often used interchangeably (Neziroglu et al., 2008). Classical conditioning refers specifically to the conditioning of physiological responses, while evaluative conditioning refers to the conditioning of either liking or disliking stimuli (Neziroglu et al., 2008). Within this model, aversive events involving one's appearance, such as being teased, may act as unconditioned stimuli which lead to an unconditioned emotional response, such as anxiety, depression, disgust, or shame. The same reaction may then occur when paired with a neutral stimulus. For example, the teasing may become associated with a specific body part, which then ultimately is evaluated negatively, even in the absence of teasing. This body part may then evoke the same emotional responses as the teasing (e.g. anxiety, depression, disgust). Many individuals who experience being teased about physical appearance do not go on to develop BDD (Neziroglu et al., 2008). It has been hypothesized that a biological predisposition, early childhood reinforcement history, and social learning are all necessary prerequisites for the development of BDD (Neziroglu et al., 2008). Such factors may increase one's sensitivity to the effects of classical/evaluative conditioning.

**Development of belief system based on relational frame theory.** A key factor in distinguishing classical conditioning in humans versus animals is the ability humans have to think and verbalize thoughts (Neziroglu et al., 2008). Neziroglu et al., (2008) therefore further propose the importance of language within the conditioning process central to BDD. This can be

understood within the context of relational frame theory (Hayes, Barnes-Holmes, & Roche, 2001; Hayes, Strosahl, & Wilson, 1999).

Relational frame theory posits that a word and an actual item or event can equally stand for one another, thereby entering into a bi-directional stimulus relation (Hayes et al., 2001). This means that because of humans' capacity for language we are able to learn about things even in the absence of experiencing the particular event. For example, a child can learn that touching a hot stove will burn without having to experience it. Unlike in animals, humans are also able to learn after the fact. The event does not need to precede the onset of the response. This bi-directionality of stimulus-response relations is due to the humans' capacity for language and cognition. This also means that arbitrary bi-directional associations can be made (Hayes et al., 2001).

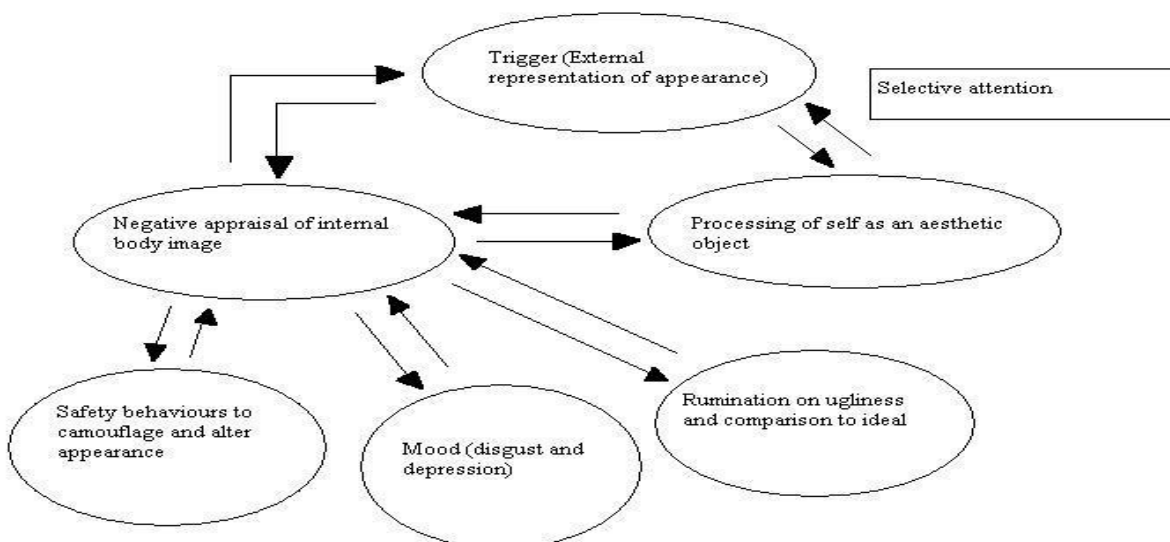
Therefore, due to language and cognition, humans develop complex networks of related events integral to relational frame theory (Hayes et al., 2001). The ability to think relationally allows for the generation of various other relations beyond the initial process of classical conditioning. Language aids in establishing complex networks of associated ideas, images and evaluations (Hayes et al., 2001).

This means that an individual with BDD may have the same aversive emotional response to any event or word which is a reminder of a similar situation which previously elicited the same response (Neziroglu et al., 2008). Due to these associations being rooted in language or cognition rather than having been directly experienced, inaccurate associations are often not tested and therefore are maintained. In individuals with BDD, arbitrary associations may be made between appearance and other aspects such as social success, competence, or self-worth (Neziroglu et al., 2008). Through this process, a set of beliefs initially introduced through early life experiences, continues to be reinforced through cognition and language. Maladaptive beliefs may become centred on thoughts such as "life is not worth living unless I am attractive". Selective attention on the 'defective' part serves to strengthen and maintain the conditioning process (Neziroglu et al., 2008).

**Maintenance of symptoms through operant conditioning.** BDD symptoms may be maintained via operant conditioning principles, and more specifically negative reinforcement, whereby the individual attempts to reduce or prevent aversive emotional responses by engaging in avoidance and safety seeking behaviours such as mirror checking (Cash, 2002, 2008). There may be occasions where an individual with BDD experiences positive reinforcement when engaging in behaviours such as mirror checking (e.g. the individual may for a moment feel content with what he/she sees). Such intermittent reinforcement may maintain certain behaviours, making them very difficult to resist (Neziroglu et al., 2008). The individual may therefore continue to engage in mirror checking even though he/she rarely attains good results in the form of reduction in aversive emotional experiences.

### A Cognitive Behavioural Model of BDD based on Information Processing

Veale's (2004) cognitive behavioural model of BDD focuses more specifically on factors involved in the maintenance of BDD symptoms. The view of oneself as an aesthetic object is a central aspect of this model and is thought to lead to various effortful cognitive processes such as rumination, social comparison, and self-attack in the form of negative-appraisals. Below is a schematic representation of Veale's model.



**Figure 3.1 A schematic representation of Veale's cognitive behavioural model of BDD (Veale, 2004, p. 115)**

**The self as an aesthetic object.** Veale (2004) discussed the self as an aesthetic object referring to “the experience of extreme self-consciousness and self-focused attention on a distorted image” (p. 114). Veale specifically makes reference to a distorted mental image. Horowitz (1970) described a mental image as being contained in one’s consciousness and possessing sensory qualities rather than qualities which are entirely verbal or abstract. One can therefore understand the distorted mental image experienced by individuals with BDD as an internal distorted visual representation existing in the mind of the sufferer. This distorted mental image is proposed in Veale’s model to be activated by an external representation of one’s appearance, for example when an individual looks in the mirror. Others may also provide an individual with an external representation of appearance, for example by teasing an individual about specific appearance features. Through a process of selective attention one’s awareness of the distorted mental image, and specific features within this image, is heightened. The distorted image serves to construct what the individual sees and focuses on when looking in the mirror, as well as to provide the BDD sufferer with information about how he/she appears to others (Veale, 2004).

Evidence for the role of imagery in BDD is presented in a descriptive study that examined mental imagery in BDD (Osman et al., 2004). It was found that individuals with BDD and healthy controls were equally likely to experience spontaneous mental images of their appearance. The mental images experienced by those with BDD, however, were more distorted and negatively rated, more recurrent, and more vivid than the healthy control group. The ‘defective’ features were also found to take up a large proportion of the whole image in BDD patients. A very significant finding in this study was that the images experienced by individuals with BDD were more often viewed from an observer perspective rather than a field perspective. An observer perspective is that whereby the individual views him or herself from another person’s perspective, while from a field perspective the individual views him or herself from his/her own perspective. It is hypothesized that individuals with BDD may use an observer perspective as a means of distancing and avoiding emotional experiences associated with negative evaluative experiences (Veale, 2004).

Veale (2004) proposes that activation of distorted imagery may be associated with increased levels of self-focused attention. Ingram (1990) described self-focused attention as an awareness of self-referent and internally generated information. In severe cases of BDD, the individual's attentional capacity may be consumed by the distorted image and the negative appraisals thereof. This does not allow the sufferer to switch his/her attention to any external information about his/her appearance, even if such information may serve to negate the distorted mental image (Veale, 2004).

In cases which are less severe, the individual may be able to shift attention to external information (Veale, 2004). According to Veale, this may create doubts about how the individual appears to others and cause instability in the individual's mental imagery. Such doubts are seen to drive the individual toward establishing with certainty exactly how he/she looks. Certainty may be sought via behaviours such as mirror checking. The reward of certainty offered by looking in the mirror serves to reinforce the behaviour. The behaviour itself serves most often to reinforce and stabilize the distorted mental image of being ugly or defective. This drive to attain certainty regarding physical appearance may often leave patients with BDD very confused about their appearance and how it might change from day to day, or even hour to hour. Factors which may contribute to a sense of continuously changing appearance in individuals with BDD include mood changes, the occasional positive reinforcement that may be experienced when examining one's appearance in certain mirrors and certain lighting, and periods of less self-focused attention (Veale, 2004). It is not uncommon for patients with BDD to believe that in every mirror or reflective surface they look, they see a different image (Veale & Riley, 2001).

The process of selective attention in individuals with BDD involves the focusing of attention on specific features of an image (Veale, 2004). This leads to the relative magnification of certain aspects of appearance which contribute to the development of a distorted mental image. While a process of selective attention could be thought to increase the accuracy of one's view of specific aspects of appearance, this may not be the case in BDD where the selective attention may be focused on a distorted body image and therefore would lead to inaccurate depictions of the features of concern (Veale, 2004).

The role of imagery and self-focused attention as proposed in Veale's model has significant implications for therapy with patients suffering from BDD. Therapeutic discussions with the patient regarding the role of imagery, how it may be linked to early experiences, and the meaning attached to the imagery may serve as valuable in the process of engagement (Veale, 2004). Constructing the 'image' as the problem, rather than the individual's appearance, may help the patient gain an understanding of the role of perception and how it may not always be accurate. Negative self-beliefs can be accessed through images, rather than through verbal thoughts (Osman et al., 2004). Techniques may be used to help the individual shift attention from self-referent information to tasks or the environment. This can be used in mirror retraining, where the individual focuses his/her attention on the task (e.g. shaving) rather than on the image (Veale & Riley, 2001).

**Negative appraisal of body image.** This aspect of Veale's (2004) model involves the negative appraisal or judgement of the image. This occurs through the activation of assumptions and values regarding the importance of one's appearance. It is proposed that in BDD appearance has become over-identified with the individual's sense of self and has become central to the individual's 'personal domain' (Veale, 2002). Beck (1976) used the term 'personal domain' with reference to the way individuals attach meaning to the events or objects around them. The central core of the personal domain consists of one's personal characteristics, physical attributes, goals and values. Around this central core are animate and inanimate objects such as one's family, friends, and possessions. When a particular value becomes idealized, it moves to the very centre of the personal domain and serves to define the individual's sense of self or identity (Beck, 1976).

The most central idealized value in BDD is usually the importance of appearance. Other idealized values may include perfectionism, symmetry, social acceptance and youth. These idealized values act to reinforce the self as aesthetic object (Veale, 2004). They serve to drive maladaptive assumptions and beliefs such as "If I am not attractive, then life is not worth living" or "I am only able to achieve something if I feel comfortable with my appearance" (Veale, Boocock, et al., 1996). Core beliefs activated in BDD relate to being inadequate or a failure, being worthless, being repulsive and abnormal, being unlovable and unacceptable, and being

rejected by others (Osman et al., 2004). In the proposed model, these negative appraisals serve to increase levels of self-focused attention through a negative feedback process. It is important to note that this generally results in the individual showing bias in favour of events that confirm these beliefs, and discounting any events that could serve to invalidate these negative self appraisals (Veale, 2004).

This aspect of Veale's model can be targeted in cognitive behavioral therapeutic processes such as identifying and questioning the meaning of defectiveness, challenging assumptions about being defective, modifying values pragmatically, reducing importance of appearance in self definition, and strengthening of alternative beliefs (Cromarty & Marks, 1995; Dryden, 1998; Veale, 2002).

**Rumination and comparison with ideal.** As discussed under both the definition and clinical features of BDD in chapter 2, preoccupation is a central diagnostic feature in BDD, with many individuals reporting that their appearance concerns are on their mind for a significant part of every day (Phillips, 2004). Cognitive processes involved in this preoccupation include fixed selective and self-focused attention as well as negative appraisals related to distorted mental imagery, as discussed above. Veale (2004) further elucidates this key clinical feature in this aspect of the model addressing the role of rumination and comparison with ideals in BDD. Veale proposes that the process of preoccupation may also involve other cognitive factors such as meta-cognitions, comparisons with an ideal internal image or with other individuals, and anxiety related to future events.

Veale (2004) draws on theories of social comparison or social ranking as they have been applied to body dissatisfaction (Allan & Gilbert, 1995; Festinger, 1954; Gilbert, Price, & Allan, 1995; Heinberg & Thompson, 1992). These theories are based on the premise that individuals compare themselves to others and may engage in comparisons with unrealistic ideals, in other words upward comparisons. In BDD these comparisons involve the specific 'defective' features of concern. This is proposed to take place in one of two ways. BDD sufferers who view their features of concern as extremely unattractive may aspire toward a sense of being average or 'normal' in appearance. Other sufferers who experience discontent with features they consider to



be average may aspire toward unrealistic standards of perfection. The latter form the minority of BDD sufferers (Veale, 2004).

Comparisons may occur in various contexts and with various targets of comparison (Veale, 2004). When an individual with BDD examines his/her reflection in the mirror, he/she may make comparisons with another idealized image. An individual with BDD may compare his/her current appearance to his/her appearance in an old photo or with images presented in the media. In social contexts, the comparison usually occurs in relation to others of the same age and gender. This constant comparison creates another negative feedback loop which serves to further increase levels of negative appraisal and self-focused attention on the distorted image (Veale, 2004).

Some evidence supporting the need for repeated comparisons in individuals with BDD can be found in a study conducted by Veale, Kinderman, Riley, and Lambrou (2003) based on self-discrepancy theory (Higgins, 1987). This theory proposes three domains of self-beliefs; *the actual self*, *the ideal self*, and *the should or ought self*. The *actual self* refers to the individual's representation of attributes he/she actually possesses. The *ideal self* refers to the individual's representation of attributes he/she would ideally hope to possess. The *should or ought self* refers to the individual's representation of attributes he/she believes ought to be possessed as a sense of duty or moral obligation. It is thought that discrepancies between the individual's *actual self* and the other domains (*ideal* and *should or ought self*) determine an individual's vulnerability to negative emotional states (Higgins, 1987). In this study Veale et al. (2003) examined the role of self-discrepancy theory in 72 patients with BDD versus 42 healthy controls. BDD patients were found to have significantly higher discrepancies between their actual self and ideal, should/ought selves. Findings suggest that patients with BDD have their own ideal regarding how they should look and are concerned with failure to achieve this aesthetic standard, resulting in ongoing appearance comparisons.

Sufferers of BDD have also been found to be concerned with perceived negative social evaluation by others. According to Veale (2004) the large majority of BDD sufferers regard social evaluation of their appearance as an additional burden and express that they would experience less distress if they were to be completely isolated from others. Some patients with

BDD report that their concerns exist only in the context of potential social evaluation, and therefore would experience no symptoms of BDD if they hypothetically existed in complete isolation (Veale, 2004). These variations in the experience of individuals with BDD are reflective of the heterogeneous and complex nature of BDD symptoms.

The aspects of preoccupation discussed above speak of the multitude of active, effortful and ruminative cognitive processes which may be occurring in an individual with BDD (e.g. comparison to others, comparison to an internal ideal image, attention to potential negative evaluation by others, self-focused attention on an internal distorted mental image), all of which may significantly decrease an individual's attentional and cognitive capacity for functioning within his/her role (e.g. as a student where cognitive demands are high). The attentional processes are most often selective and therefore unrepresentative, preventing the processing of other external information (Veale, 2004).

One goal of therapy with respect to this aspect of Veale's (2004) model would be to aid the individual in starting to resist frequent forms of comparison, and therefore the consequent negative appraisals associated with these comparisons which serve to reinforce an ongoing negative feedback loop in maintaining BDD symptoms (Veale, 2004).

**Emotions.** Like other aspects of BDD, the associated emotions in this disorder are complex and may depend on the specific appraisal made by the individual with regard to the particular situation or event (Veale, 2004). Veale outlines a number of potential emotions experienced by individuals with BDD, as well as suggests the possible source of such emotions with regard to the cognitive and behavioural processes described in this model.

The individual may feel a sense of internal shame or self-disgust. This may be related to comparisons engaged in where the individual's distorted mental image does not live up to the idealized image of the target of comparison. External shame or social anxiety may be experienced in response to anticipated or perceived negative social evaluation and rejection. Depression and hopelessness may occur as a result of not being able to achieve one's aesthetic standard, as well as aspects such as social isolation and difficulties experienced in relating to others. Depression and hopelessness are particularly prominent emotional experiences in BDD as

evidenced by high rates of comorbidity with depression and suicidal ideation (Gunstad & Phillips, 2003; Phillips, 2007). Anger and frustration may be elicited after the individual engages in damaging behaviours such as continuous skin-picking. This anger and frustration may also be directed at others for not being able to understand or not agreeing with the individual's appearance concerns. Furthermore, a sense of guilt may be experienced in relation to damaging one's appearance through behaviours aimed at improving one's appearance, or due to cosmetic surgeries perceived to be unsuccessful. In the researcher's opinion, experiences of frustration, guilt, shame, anxiety, depression and hopelessness may possibly also occur as a result of the extreme functional impairment experienced by BDD sufferers.

As in the other proponents of this model, Veale (2004) identifies a negative feedback loop which further maintains BDD symptoms. An increase in emotional arousal is proposed to increase the frequency and intensity of negative appraisals of body image, and thereby further increase the individual's levels of self-focused attention. Thus, therapeutically, it may be valuable to increase tolerance to negative emotional states, as well as to target mood components psycho-pharmacologically. This is supported by evidence showing the effectiveness of SRI's, a class of antidepressants, in the treatment of BDD (Phillips, 2002; Phillips et al., 2002).

**Safety behaviours.** As discussed in Chapter 2, BDD has been widely conceptualized as falling within the same spectrum of disorders as obsessive compulsive disorder (OCD) due to the many similarities in psychopathology, high rates of comorbidity, and similar treatment approaches of these disorders (Cororve & Gleaves, 2001; Fang, Matheny, & Wilhelm, 2014). Acceptance of this view is supported by BDD's recent classification under the section on 'obsessive-compulsive and related disorders' in the DSM-5, rather than under the somatoform section where it previously appeared (APA, 2013a, 2013b). Similar to individuals with OCD, BDD sufferers commonly engage in repetitive behaviours or mental acts in response to their preoccupations (Phillips & Feusner, 2010).

Veale (2004) believes that it may be valuable to conceptualise the behavioural strategies engaged in by individuals with BDD as "safety behaviors" (Salkovskis, 1991, 1996) or as "submissive behaviours" from an evolutionary psychological perspective (Allan & Gilbert, 1997). From this perspective, such behaviours are viewed as having been developed to serve an

adaptive function. Safety behaviours in the context of anxiety disorders are conceptualized as behaviours in specific situations which are aimed at preventing feared catastrophes (Veale, 2004). Submissive behaviours in social contexts are conceptualized as damage-limiting self-presentations (Gilbert, 2000).

Within Veale's (2004) model, safety or submissive behaviours include the following: avoidance behaviours in relation to overwhelming emotion (e.g. avoidance of public places or reflective surfaces), behaviours aimed at reducing scrutiny by others (e.g. camouflaging), and compulsive behaviours which are repeated with the aim of feeling content or comfortable (e.g. excessive mirror checking, skin picking, reassurance seeking). It is important to note that such behaviours vary from one individual to another, and often depend on the personal meaning attached to the behaviour for a specific individual (Veale, 2004).

Safety behaviours in BDD are generally engaged in for numerous reasons such as attempting to avoid thinking about a specific feature, trying to alter a feature, trying to camouflage a feature, trying to distract attention from a feature, or trying to reduce a sense of uncertainty or distress about an image (Veale, 2004). The problem with such 'compulsive' safety behaviours is that the individual often uses problematic criteria for the termination of the compulsive behaviour, such as needing to feel absolutely comfortable or certain, or attempting to attain the "right feeling" (Yaryura-Tobias & Neziroglu, 1997).

The significance of safety behaviours in BDD, as conceptualized within Veale's (2004) model, is that they maintain yet another negative feedback loop. While such behaviours may at times briefly decrease levels of distress or uncertainty, they are somewhat counter-productive in that they serve to increase levels of self-consciousness, preoccupation, and negative appraisal. These behaviours involve high degrees of mental effort and attention, and thereby further decrease an individual's capacity to process external information. They usually result in further self-monitoring, such as needing to continuously check in the mirror to see if an attempted form of camouflage is proving successful. Certain behaviours (e.g. skin picking) may even make one's appearance worse, thereby increasing feelings of guilt, shame, and self-consciousness. Behaviours aimed at decreasing social-evaluative attention towards a specific feature may

ultimately increase the attention by others to one's appearance (for example a person who tries to hide a certain feature by holding their hand up against their face during social interaction).

Given that safety behaviours are a significant maintenance factor in the preoccupation and distress experienced by individuals with BDD, they need to be targeted in the therapeutic process with the aim of reducing such behaviours. Patients may need to be exposed to situations, which would usually elicit these behaviours, with an emphasis on not engaging in the safety behaviours but rather shifting attention to the specific task at hand (Veale, 2004). There is, therefore, a focus on shifting attentional processes away from self-focused attention.

## **Conclusion**

In this chapter two cognitive behavioural models of BDD were presented and discussed. These models are valuable in understanding both the development and maintenance of BDD symptoms. Given that these models have gained significant empirical support, they may be considered of clinical utility in informing current treatment approaches to BDD. Neziroglu et al.'s (2004) model has a greater emphasis on conditioning processes in the development of maladaptive beliefs associated with BDD, while Veale's (2004) model focuses primarily on cognitive processes and the role of imagery in the maintenance of BDD symptoms.

## **Chapter 4: Research Methodology**

### **Introduction**

This study is quantitative in nature, meaning that variables are measured empirically to obtain scores and that the data is represented numerically (Gravetter & Forzano, 2009). Quantitative research is based on a systemic approach to the research design and the objective, statistical interpretation of data which avoids the inclusion of assumptions or perceptions (Brink, van der Walt, & van Rensburg, 2012). Quantitative research is grounded in the positivist paradigm which asserts a systemic approach to research with an emphasis on the importance of observable facts (Brink et al., 2012).

### **Research Strategy**

This study employed a non-experimental, descriptive research strategy. Non-experimental research is distinguishable from experimental or quasi-experimental research based on the premise that there is no manipulation of the independent variable and the setting is not controlled (Brink et al., 2012). Instead, a non-experimental study is conducted in a natural setting and the phenomena being studied are observed as they occur. The purpose of such research is to describe phenomena and to explore or explain relationships between variables (Brink et al., 2012).

Descriptive research is a form of non-experimental research which involves the measurement of variables as they occur naturally, but does not, however, aim to understand or explain the relationship between different variables (Gravetter & Forzano, 2009). Descriptive research is often employed when there is insufficient literature describing the study population or variable (Brink & Wood, 1998). This strategy is therefore appropriate for the current study which aims to examine the prevalence of BDD in a specific context where research remains limited.

### **Research Design**

In this study a cross-sectional, survey design was employed. The cross-sectional aspect of the design refers specifically to the time dimension of the research process (Brink et al., 2012). In cross-sectional research the status of a specific phenomenon, in this case the prevalence of

body dysmorphic disorder, is investigated at a specific point in time and therefore cannot be generalized to other time periods (Brink et al., 2012). Benefits to such a design are that such studies tend to be more manageable, more cost-effective, and less time-consuming than longitudinal designs which examine phenomena over longer periods of time (Brink et al., 2012). The purpose of such studies is not to determine causality, but rather to yield findings that are exploratory, descriptive, or explanatory in nature (Brink et al., 2012). A prevalence study is a form of cross-sectional study which aims to determine the number of existing cases of a specific condition at a specific point in time (Bonita, Beaglehole, & Kjellstrom, 2006).

Survey research designs involve the collection of data where the researcher defines the particular population to be described, draws a sample of individuals of the defined population, collects data either by asking the participants questions or getting them to complete tasks, and then statistically analyses the data such that the sampling process is accurately reflected (Krosnick, Lavrakas, & Kim, 2015). A survey design is used in order to obtain a description of a particular group of individuals and has the benefit of being a very efficient way of collecting large amounts of information (Gravetter & Forzano, 2009).

### **Target Population**

A target population is defined as the group of individuals from which the researcher collects data, and is outlined and defined by the researcher according to the specific aims of the study (Gravetter & Forzano, 2009). It is often not possible to gather data from the entire population under study, and thus sampling methods are employed to gather data from a sample of the population which should be representative of the whole population in terms of its characteristics (De Vaus, 2002).

The population under study in this research is comprised of students (both undergraduate and post-graduate) at a specific South African university. A student population has been selected in the current research for both the convenience of the researcher, as well as findings in the existing literature that suggest that student populations are particularly vulnerable to suffering from BDD based on higher prevalence findings among students than in the general population (Bartsch, 2007; Bohne, Keuthen, et al., 2002; Bohne, Wilhelm, et al., 2002; Boroughs et al.,

2010; Cansever, Uzan, Donmez, & Ozsahin, 2003; Dlagnekova, 2012; Taqui et al., 2008; Zhu & Deng, 2010).

## **Sampling**

**Sample size.** The researcher aimed to attain a sample of at least 500 students registered at a specific South African university. The relatively large sample size aimed for in the current study was intended to address the inherent limitation in generalisability of findings posed by the use of relatively small homogenous samples in the large majority of similar BDD prevalence studies conducted to date, as outlined in the literature. The smallest sample used in such studies was a sample of 101 students in Bohne, Keuthen, et al.'s (2002) study, significantly decreasing the generalisability of findings. In Dlagnekova's (2012) study, examining prevalence of BDD in a similar-sized South African university, proportionate stratified random cluster sampling was employed and a sample of 395 students was attained to meet a recommended 5% significance level and 95% confidence interval. This served as a valuable point of departure in determining sample size in the current study.

**Sampling method.** The non-probability sampling method of convenience sampling was employed in the current study. Convenience sampling refers to the selection of participants who are readily available and are willing to participate, and thus the sample can be obtained with relative ease (Gravetter & Forzano, 2009). The most significant limitation posed by the use of convenience sampling is that the sample attained may not be representative of the whole population under study, thereby decreasing the generalisability of the findings (Krosnick et al., 2015). Despite this limitation, Krosnick et al. do not negate the value of such research, stating that such studies are important in examining whether a particular phenomenon occurs at all. Such studies allow for the exploration of particular mechanisms of a phenomenon and the identification of its moderators, enhancing our understanding of the process under study (Krosnick et al., 2015).

Convenience sampling was selected as the sampling method based on the specific university's regulation that data should be collected online via the university's online student system, rather than accessing participants in the classroom environment. This online system does



not allow one to identify and access students based on specific demographic variables. This meant that the researcher could not control the sample composition in terms of the demographic variables of interest in this study. This is a limitation of the current study in that the various demographic groups may not be adequately represented with reference to the target population. The use of an online sample in the current study may, however, may also be viewed as an inherent strength to the study. As discussed under the literature, many individuals with BDD experience periods of being housebound. By accessing students via the university's online system (which can be accessed outside of the university premises), such individuals were not excluded from participating in the study.

Various measures were taken by the researcher in an attempt to increase the representativeness and diversity of the sample. Firstly, the researcher aimed to attain a relatively large sample as discussed above. Secondly, to attain as heterogeneous a sample as possible, all eighteen departments in the Humanities Faculty at the specific university under study were invited to have their students participate in the online study.

The ethical clearance granted in the current study limited the researcher to accessing students registered for modules within the Humanities Faculty at the specific university. This may be viewed to limit the generalisability of prevalence findings to the entire student population. It was not an aim in the current study to examine differences in prevalence across faculties or fields of study. Dlagnekova's (2012) study is the only study to date to compare prevalence of BDD among students across various faculties. No statistically significant differences in prevalence were found across faculties, thus suggesting that a sample drawn from a single faculty, as in the current study, does not pose a significant limitation in terms of the aims of the study.

Most importantly, given the limitations of convenience sampling, the researcher will provide a clear description of the sample attained, specifically in terms of the demographic variables under study. This means that even if the sample is not truly representative and contains some biases, these limitations will be made transparent in the findings.

## Measurement Instruments

**Demographics questionnaire.** The demographics questionnaire was presented as ‘Part 1’ of the survey. The most important information gathered from this questionnaire, with reference to the aims of the current study, was the respondent’s gender, race and sexual orientation. These items were presented as drop-down response format items where specific categorical options were provided, as well as an ‘Other (please specify)’ option. The categorical responses provided in the drop-down response lists were as follows: gender (male, female, other); race (black, white, indian, mixed, asian, other); sexual orientation (heterosexual/straight, homosexual/gay, bisexual, other). Other items included in the demographics questionnaire were as follows: age, degree, current academic year, first year of registration, module from which the participant accessed the survey on the university’s online system, and relationship status.

**The Body Image Disturbance Questionnaire.** The Body Image Disturbance Questionnaire (BIDQ; Cash et al., 2004) was utilized in the current study to screen for the presence of BDD. The rationale for selecting this instrument lies in its excellent psychometric properties, as well as the fact that it addresses some of the methodological limitations posed by other instruments used in similar prevalence studies (Cash et al., 2004). Such instruments include the Yale-Brown Obsessive Compulsive Scale Modified for Body Dysmorphic Disorder (Phillips, Hollander, Rasmussen, & Aronowitz, 1997) and the Body Dysmorphic Disorder Questionnaire (BDDQ; Phillips, 1996). The former has received critique for being too focused on obsessive-compulsive type symptoms (Boroughs et al., 2010). The latter BDDQ, despite its adequacy in determining the presence of BDD, has been considered to be limited by its dichotomous yes/no response format (Cash et al., 2004).

The Body Image Disturbance Questionnaire (BIDQ) was developed by Cash et al. (2004) and was derived from the Body Dysmorphic Disorder Questionnaire (BDDQ) (Phillips, 1996). The BDDQ is a 9-item self-report scale to screen for BDD based on DSM-IV-TR diagnostic criteria (Cash et al., 2004). The BIDQ was developed to improve on limitations of the BDDQ by modifying wording and converting the response format from a dichotomous yes/no format to a 5-point Likert scale response format (Cash et al., 2004). This allows one to assess not only the presence of BDD, but also the relative severity of the disorder. The BIDQ consists of 7 two-part

items; the first two items assess level of concern with an appearance feature, the third item assesses degree of subjective distress, and the remaining items assess level of functional impairment (Taqui et al., 2008). A total score of 21 or greater (or a mean score of 3 or greater) attained on the 7 Likert scale items indicates that an individual screens positive for the presence of BDD. The second part of each item is presented as an open-ended question. These questions do not form part of the scoring of the instrument, and therefore were adapted by the researcher to allow for analyses more in line with the quantitative nature of this study. These adaptations, as well as additional items developed by the researcher, will be discussed below under the section on adaptations and additional items.

The BIDQ has been tested on student samples and has been found to have a Cronbach's alpha of 0.89-0.90 for females and 0.87-0.89 for males, and a test-retest reliability of 0.88 (Cash et al., 2004). A preliminary study suggested that a score greater than or equal to 21 on the questionnaire would detect 98% of individuals with BDD (Veale & Neziroglu, 2010).

**Adaptations and additional items.** It is important to note that all adapted and additional items developed by the researcher do not have established psychometric properties. These items thus serve an exploratory purpose in this study. All findings regarding these items will be presented and interpreted with caution. These items do not, in any way, influence or form part of the scoring of the BIDQ. This means that the established psychometric properties of the BIDQ in screening for BDD will not be affected by these items. The primary aim of these items was to explore in more depth the clinical features and functional consequences of BDD in the specific population under study.

**Adaptations.** Adaptations were made to the open-ended items contained in the BIDQ such that items would lend themselves to quantitative analyses in line with the methodology of the current study. Adaptations involving the development of possible responses to items (i.e. items 5B, 6B, & 7B) were informed by the literature outlined in this study (refer to section on Clinical and associated features in Chapter 2), as well as by aspects of Veale's (2004) Cognitive Behavioural model of BDD (Refer to Chapter 3). In providing participants with a number of possible responses, there is the risk that such responses may not be exhaustive and may not necessarily capture participant-specific experiences. For this reason an "Other (please specify)"

option was included in such items. Table 4.1 below shows the item number and description of original items contained in the BIDQ, and how these items were adapted for the purposes of the current study.

Table 4.1  
*Adaptations of open-ended items contained in the Body Image Disturbance Questionnaire (BIDQ)*

Original item in BIDQ	Adapted item
1B. Open-ended item addressing nature of appearance concerns	Adapted to allow 5 parts of concern to be listed in order of priority.
2B. Open-ended item addressing the effect of the preoccupation on the individual's life	Adapted to address the time component of the preoccupation, with a drop-down list of time-periods spent thinking about appearance concerns.
5B. Open-ended item addressing the effect of the perceived defect on the individual's social life	Adapted to offer respondent a number of response possibilities, from which one or more could be selected. An 'Other (please specify)' option was also included.
6B. Open-ended item addressing the effect of the perceived defect on the individual's occupational/academic functioning	Adapted to offer respondent a number of response possibilities, from which one or more could be selected. An 'Other (please specify)' option was also included.
7B. Open-ended item addressing avoidance behaviour of the individual	Adapted to offer respondent a number of response possibilities, from which one or more could be selected. An 'Other (please specify)' option was also included.

**Additional items.** All additional items developed by the researcher were based on existing literature as contained in Chapter 2 of this study, as well as on the underpinning cognitive behavioural model of BDD contained in Chapter 3 of this study. Table 4.2 below provides the number and description of the developed item, the rationale behind its development and inclusion, and the source of literature that served to inform the development thereof.

Table 4.2

*Additional items developed by the researcher to include in the current study*

Description of item	Rationale for item	Literature informing item
1C. Dichotomous yes/no response format item addressing whether the primary concern is weight related	A positive response to this item, and a score of 21 or greater on the BIDQ, may suggest the presence of an eating disorder rather than BDD. This will be used to exclude participants from the BDD group based on a primary focus on weight.	The wording of this item was borrowed from the Body Dysmorphic Disorder Questionnaire (BDDQ; Phillips, 1996). Dlagnekova (2012) included a similar item in her study which also utilized the BIDQ.
1D. Dichotomous yes/no response format item addressing whether the primary concern is related to one's build being too small or insufficiently muscular	This item was developed to identify individuals who may suffer from a specific subtype of BDD called muscle dysmorphia which has been primarily identified in males (APA, 2013a, 2013b). A positive response to this item, and a score of 21 or greater on the BIDQ, may suggest a BDD diagnosis with a muscle dysmorphia specifier.	The wording of this item was informed by the description of muscle dysmorphia as included as a specifier under the diagnostic criteria for BDD in the DSM-5 (APA, 2013a, 2013b).

Description of item	Rationale for item	Literature informing item
<p>3B. Multiple option response format item (allowing for selection of more than one response) addressing the affectual component of distress experienced by those with BDD. An ‘Other (please specify)’ option was also included.</p>	<p>The BIDQ does not contain an item exploring the type of distress experienced by BDD sufferers, only an item addressing the magnitude of the distress experienced. The researcher thought it valuable to tap into specific affectual responses in BDD as outlined in the literature.</p>	<p>The type of affectual responses provided as possible responses to this item were informed primarily by the emotion component of Veale’s (2004) cognitive behavioural model of BDD (Refer to Chapter 3). A response tapping into suicidal ideation was also included based on findings of high rates of suicidality in BDD sufferers (Phillips, 2007).</p>
<p>8A. Dichotomous yes/no response format item addressing whether the individual engages in repetitive behaviours or mental acts in response to appearance concerns.</p>	<p>The BIDQ is based on DSM-IV-TR (APA, 2000) diagnostic criteria for BDD and therefore does not address repetitive behaviours or mental acts. This feature was recently included in DSM-5 (APA, 2013a, 2013b) diagnostic criteria for BDD. The researcher would like to explore whether those who screen positive for BDD on the BIDQ also indicate the presence of repetitive behaviours or mental acts, thereby meeting DSM-5 criteria for the disorder.</p>	<p>The wording of this item was based on the DSM-5 (APA 2013a, 2013b) diagnostic criteria for BDD. The prominence of this clinical feature of BDD is also supported by literature (Phillips &amp; Feusner, 2010).</p>

Description of item	Rationale for item	Literature informing item
8B. Multiple option response format item (allowing for selection of more than one response) addressing the types of repetitive behaviours or mental acts engaged in as a result of appearance concerns. An ‘Other (please specify)’ option was also included.	The researcher thought it valuable to explore the nature of specific repetitive behaviours or mental acts engaged in by BDD sufferers as outlined in the literature. Such behaviours and mental acts further impair the individual’s level of functioning (Crerand et al., 2006).	The responses provided as possible responses to this item were informed by examples of repetitive behaviours or mental acts provided in the DSM-5 (APA, 2013a, 2013b), as well as by the ‘Safety Behaviour’ component of Veale’s (2004) cognitive behavioural model of BDD (Refer to Chapter 3).
9. Multiple option response format item addressing whether the individual has spoken to others regarding his/her appearance concerns.	This item was developed to assess the prominence of individuals being secretive about their BDD symptoms, and thus to elucidate a possible reason for the under-diagnosis and under-representaion of BDD described in the literature.	Literature suggests that BDD is both under-represented and under-diagnosed in part due to sufferers remaining secretive about the experience of BDD symptoms (Neziroglu & Yaryuru-Tobias, 1997; Phillips, 1991).

Description of item	Rationale for item	Literature informing item
10(A,B,C). Items addressing whether individuals have sought professional help for their appearance concerns (10A). If so, the type of professional help they have sought (10B). If not, the type of professional help they would consider seeking (1C).	These items were included to explore the help-seeking behaviour of individuals with BDD in the South African university context. This information is deemed valuable by the researcher based on literature suggesting that such individuals may not seek professional help, or may present for help in the inappropriate professional context.	Literature suggests that individuals with BDD may not seek professional help due to a sense of shame, inability to find a treatment provider, or the belief that cosmetic surgery or dermatologic treatment is the only option (Buhlmann, 2011). Due to delusional convictions many sufferers seek dermatologic or surgical treatment rather than help from mental health care providers (Fang et al., 2014).

### Data Collection Procedure

Data was gathered by means of an online self-report survey. The survey (consisting of a letter of informed consent, the demographics questionnaire, and the BIDQ containing adapted and additional items) was created on Survey Monkey, an online platform for the development and administration of surveys. Clear written instructions were provided within the survey. Informed consent was provided by participants by choosing to select ‘Next’ after reading the letter of informed consent. An ‘exit survey’ option allowed participants to withdraw from the study at any point. The online nature of the survey allowed participants to maintain complete anonymity.

A customized link to the survey was generated in Survey Monkey. The use of a link in accessing the survey further ensured anonymity of participants. All eighteen departments within



the Humanities faculty at the specific university under study were contacted via email. This email included a brief description of the study, an invitation to have their students participate, and a brief announcement of the study with the survey link that could be posted on specific departmental modules on the university's online student system. Students accessing such online modules were then provided with the link following a short announcement of the study, and could click on the link to participate.

### **Data Analysis Method**

The researcher utilised SPSS (version 23), a statistical software program, to analyse the data. Descriptive statistics were employed in order to describe the characteristics of the sample and BDD prevalence rates, as well as to explore responses to additionally developed items in the form of frequency tables. Chi-square analyses were conducted to examine for significant differences in prevalence rates across the demographic variables. Differences in mean scores attained by respective demographic groups on the BIDQ, indicative of the experienced severity of appearance concerns, were analysed by means of independent-sample t-tests and one-way analyses of variance. The statistical significance of findings was determined by analysing p-values, with values of less than 0.05 indicating significance. Effect sizes were calculated for statistically significant findings.

### **Ethical Considerations**

The possibility of harm to participants is a fundamental ethical consideration in all research (Gravetter & Forzano, 2009). The descriptive methodology of the current study minimized the risk of possible harm to participants. Contact details of the researcher and the counselling division of student support services at the specific university were made available to participants so that support could be offered in cases where participants experienced any difficulty relating to the content of the survey.

Informed consent is one of the most crucial aspects of all ethical codes and involves three basic criteria. Firstly, complete information should be given to participants regarding the nature of the proposed study, and their role in it. Secondly, participants should understand the information given to them. Thirdly, participants should decide voluntarily whether they wish to

participate in the study (Gravetter & Forzano, 2009). These criteria were adhered to and outlined in the letter of informed consent that was written in a clear, simple and understandable style. Contact details of the researcher were provided for any questions or concerns. Participants were also informed in this letter that they could withdraw from the study at any point with no negative consequences.

All data gathered were handled in adherence with principles of confidentiality (Gravetter & Forzano, 2009). No identifying information was provided by participants thus ensuring complete anonymity. All data attained will be securely stored in the Department of Psychology at the specific university for a period of fifteen years before it is destroyed, in accordance with the specific university's data storage policy. Participants were made aware that future research may make use of the data.

## **Conclusion**

The current study endorsed a quantitative methodology to examine the prevalence and clinical features of BDD among students at a specific South African university. A non-experimental descriptive strategy and cross-sectional survey design were employed. The sample was attained by means of convenience sampling. A demographics questionnaire and the Body Image Disturbance Questionnaire, with some adapted and additional items, comprised the measurement instruments in the current study. The survey was administered online via the specific university's online system. Data were analysed in SPSS (version 23). Ethical principles were carefully considered and adhered to throughout the study.

## Chapter 5: Findings

### Introduction

In this chapter the findings of the study are presented. Firstly the sample is described in terms of the demographic variables pertinent to the study. Thereafter prevalence findings are presented and the demographic features of those who meet the criteria for BDD are described. This is followed by findings on the significance of associations between the demographic variables and the presence of BDD. Differences in mean scores attained on the BIDQ across demographic groups and the significance thereof are then presented. This pertains to the experienced severity of appearance concerns across the different demographic groups. Lastly, findings regarding the nature of clinical and associated features, as well as help seeking behaviour, of participants screening positive for BDD or evidencing clinically significant appearance concerns are presented in the form of frequency tables based on responses to additionally developed or adapted items.

### Sample Characteristics

A total of 457 students at the specific South African university under study participated in the online survey. Of these responses, 59 were incomplete (i.e. mandatory items were not completed) and were therefore excluded from the findings. Thus, findings will be presented for a sample of 398 participants. These participants were comprised of both undergraduate and post-graduate students registered for subject modules offered by various departments within the Humanities faculty at the specific university. While a sample of 500 students, as originally aimed for, was not attained, this remains a relatively large sample in comparison to the large majority of similar prevalence studies conducted to date.

Ages of participants ranged from 18 to 37, with a mean age of 20.44 and a standard deviation of 2.067. The sample consisted of 60 males (15.1%) and 338 females (84.9%). With regard to race, the majority of participants were White (n=270, 67.8%), followed by Black (n=106, 26.6%), and then much smaller representations of Mixed (n=11, 2.8%), Indian (n=9, 2.3%), Asian (n=1, 0.3%), and Other (n=1, 0.3%) racial groups. Most participants indicated their sexual orientation as heterosexual (n=364, 91.5%), with significantly fewer participants

indicating their sexual orientations as homosexual (n=13, 3.3%), bisexual (n=17, 4.3%), or other (n=4, 1%).

Table 5.1  
*Sample characteristics*

	n	%
<b>Gender</b>		
Male	60	15.1
Female	338	84.9
<b>Race</b>		
White	270	67.8
Black	106	26.6
Mixed	11	2.8
Indian	9	2.3
Asian	1	0.3
Other	1	0.3
<b>Sexual Orientation</b>		
Heterosexual	364	91.5
Homosexual	13	3.3
Bisexual	17	4.3
Other	4	1

Note. n=number of participants.

### Prevalence of Body Dysmorphic Disorder

The prevalence of BDD in the sample was reported at 3.3% (n=13). A further 58 participants (14.6%) met the cut-off score on the BIDQ for BDD (indicated by a score of 21 or greater) but were excluded from the BDD prevalence rate based on a positive response to Item 1c which assessed whether weight was the primary appearance concern. A primary focus on weight is not typical to the clinical features of BDD, and may suggest a differential diagnosis of an eating disorder (Dlagnekova, 2012). Participants not meeting the cut-off score of 21 on the BIDQ, and therefore not indicating clinically significant appearance concerns, were reported at 82.2% (n=327). Table 5.2 outlines the prevalence findings discussed above.

Table 5.2  
*Prevalence of body dysmorphic disorder*

	n	%
Participants screening negative for presence of BDD (score <21 on BIDQ)	327	82.2%
Participants indicating clinically significant appearance concerns (score $\geq$ 21 on BIDQ)	71	17.8%
Participants excluded from BDD prevalence due to primary weight concerns (score $\geq$ 21 on BIDQ, positive response to Item 1c)	58	14.6%
<b>Participants screening positive for BDD (score <math>\geq</math> 21 on BIDQ, negative response to Item 1c)</b>	<b>13</b>	<b>3.3%</b>

Note. n=number of participants.

### Characteristics of Participants Screening Positive for BDD (n=13)

Of the thirteen participants screening positive for BDD (BDD group) the majority were female (n=10, 76.9%), and three participants were male (23.1%). In terms of race, six participants in this group were Black (46.2%), four participants were White (30.8%), two participants were Mixed (15.4%), and one participant was Indian (7.7%). There were no Asian (0%) or Other (0%) racial group participants who screened positive for BDD. Regarding sexual orientation, most participants in the BDD group were heterosexual (n=11, 84.6%), one participant was homosexual (7.7%), and one participant was bisexual (7.7%). There were no 'other' sexual orientation participants in this group (0%). Furthermore, five participants in this group indicated that their primary concern was related to their build being too small or insufficiently muscular (38.5%), four of which were female. These percentages are expressed as proportions of the BDD group (n=13), and therefore do not take sample composition into consideration. These findings are presented in Table 5.3 below. For prevalence percentages expressed as proportions of the demographic groups as represented in the sample refer to Table 5.4.

Table 5.3  
*Characteristics of participants screening positive for BDD*

	BDD group (n=13)	
	n	%
<b>Gender</b>		
Male	3	23.1
Female	10	76.9
<b>Race</b>		
Black	6	46.2
White	4	30.8
Mixed	2	15.4
Indian	1	7.7
Asian	0	0
Other	0	0
<b>Sexual Orientation</b>		
Heterosexual	11	84.6
Homosexual	1	7.7
Bisexual	1	7.7
Other	0	0
<b>Primary concern with build being too small or insufficiently muscular</b>	5	38.5

Note. n=number of participants.

### **Relationships between Presence of BDD and Demographic Variables**

Students who screened positive for BDD (n=13) were compared to those who did not screen positive for the disorder (n=385, this includes those who were excluded from BDD prevalence due to a primary focus on weight) by means of chi-square analysis. Chi-square analyses were conducted for demographic variables of gender, race, and sexual orientation. Statistically significant associations were evidenced by a Pearson correlation of less than 0.05. Effect sizes were examined in cases of statistically significant associations. Findings are presented in Table 5.4.

A chi-square test for independence indicated no significant association between the presence of BDD and the students' gender,  $X^2(1, n = 398) = 0.672, p = 0.412$ . Similarly, no significant association was found between the presence of BDD and the students' sexual orientation,  $X^2(2, n = 394) = 1.230, p = 0.541$ . The 'Other' group for the variable of sexual orientation was not included in the chi-square analysis due to there being no participants in this group who met the criteria for BDD. Cell counts of zero in a chi-square analysis compromise the validity of the findings.

A significant association was found between the presence of BDD and the students' race,  $X^2(3, n = 396) = 14.074, p = 0.003$ . The 'Asian' and 'Other' racial groups were excluded from the chi-square analysis based on there being no participants in these groups who met BDD criteria. The effect size was calculated using Cramer's V, as indicated for tables larger than 2 by 2 cells. The Cramer's V value was reported at 0.189, indicating a medium effect size for the association.

Table 5.4  
*Cross-tabulation of BDD presence and demographic variables*

	No BDD group (n = 385)		BDD group (n = 13)		Significance (p < 0.05)
	n	%	n	%	
<b>Gender</b>					<b>0.412</b>
Male	57	95	3	5	
Female	328	97	10	3	
<b>Race</b>					<b>0.003</b> (Cramer's V = 0.189)
Black	100	94.3	6	5.7	
White	266	98.5	4	1.5	
Mixed	9	81.8	2	18.2	
Indian	8	88.9	1	11.1	
<b>Sexual Orientation</b>					<b>0.541</b>
Heterosexual	353	97	11	3	
Homosexual	12	92.3	1	7.7	
Bisexual	16	94.1	1	5.9	

Note. n=number of participants.

## **Analysis of Mean Scores across Demographic Variables**

Mean scores attained on the BIDQ across demographic groups of gender, race, and sexual orientation were examined to determine whether there were statistically significant differences in the experienced severity of appearance concerns at the  $p < 0.05$  level. This analysis was conducted separately for three groups of participants; those who screened positive for BDD ( $n=13$ ), all participants indicating clinically significant appearance concerns evidenced by a score of 21 or greater on the BIDQ ( $n=71$ ), and all participants ( $n=398$ ). Findings are presented below for each group.

### **Analysis of mean scores of BDD group ( $n=13$ ) across demographic variables.**

Findings are presented in Table 5.5. The mean score for males in the BDD group was 24.67, and for females was 25.00. An independent-samples t-test indicated that the difference in mean scores across gender was not significant (2-tailed  $p$ -value = 0.915).

Mean scores attained across racial groups were as follows: Black (mean=24.50), White (mean=26.50), Mixed (mean=22.50), and Indian (mean=26.00). There were no 'Asian' or 'Other' participants in this group. A one-way analysis of variance (ANOVA) indicated that the difference in mean scores across race was not significant ( $p$ -value = 0.397).

Mean scores attained across sexual orientation groups were as follows: Heterosexual (mean=24.82), Homosexual (mean=30.00), Bisexual (mean=21.00). There were no 'Other' sexual orientation participants in this group. A one-way analysis of variance (ANOVA) indicated that the difference in mean scores across sexual orientation was significant ( $p$ -value = 0.044). The effect size was found to be large (eta squared = 0.464). This finding should be interpreted with caution due to there being only one participant in both the 'Homosexual' and 'Bisexual' sexual orientation groups.



Table 5.5  
*Analysis of mean scores of BDD group (n=13) across demographic variables*

	n	Mean	Standard Deviation	T-test/ANOVA Sign. (p < 0.05)
Gender				<b>0.915</b>
Male	3	24.67	4.726	
Female	10	25.00	2.211	
Race				<b>0.397</b>
Black	6	24.50	2.811	
White	4	26.50	2.646	
Mixed	2	22.50	2.121	
Indian	1	26.00	N/A	
Sexual Orientation				<b>0.044 (eta sq. = 0.464)</b>
Heterosexual	11	24.82	2.183	
Homosexual	1	30.00	N/A	
Bisexual	1	21.00	N/A	

Note. n=number of participants.

**Analysis of mean scores of all participants indicating clinically significant appearance concerns (n=71) across demographic variables.** Findings are presented in Table 5.6. The mean score for males in the clinically significant appearance concerns group was 26.43, and for females was 24.34. An independent-samples t-test indicated that the difference in mean scores across gender was not significant (2-tailed p-value = 0.149).

Mean scores attained across racial groups were as follows: Black (mean=24.63), White (mean=24.39), Mixed (mean=23.67), Indian (mean=23.50), and Other (mean=35.00). There were no ‘Asian’ participants in this group. A one-way analysis of variance (ANOVA) indicated that the difference in mean scores across race was not significant (p-value = 0.062).

Mean scores attained across sexual orientation groups were as follows: Heterosexual (mean=24.33), Homosexual (mean=29.50), Bisexual (mean=23.50). There were no ‘Other’ sexual orientation participants in this group. A one-way analysis of variance (ANOVA) indicated that the difference in mean scores across sexual orientation was significant (p-value = 0.014). The effect size was found to be large (eta squared = 0.117).

Table 5.6

*Analysis of mean scores of all participants indicating clinically significant appearance concerns (n=71) across demographic variables*

	n	Mean	Standard Deviation	T-test/ANOVA Sign. (p < 0.05)
Gender				<b>0.149</b>
Male	7	26.43	4.894	
Female	64	24.34	3.442	
Race				<b>0.062</b>
Black	19	24.63	3.639	
White	46	24.39	3.461	
Mixed	3	23.67	2.517	
Indian	2	23.50	3.536	
Other	1	35.00	N/A	
Sexual Orientation				<b>0.014 (eta sq. = 0.117)</b>
Heterosexual	61	24.33	3.429	
Homosexual	4	29.50	4.203	
Bisexual	6	23.50	3.209	

Note. n=number of participants.

#### **Analysis of mean scores of all participants (n=398) across demographic variables.**

Findings are presented in Table 5.7. The mean score for males in the sample was 13.87, and for females was 15.50. An independent-samples t-test indicated that the difference in mean scores across gender was significant (2-tailed p-value = 0.039). The effect size was found to be small (eta squared = 0.012).

Mean scores attained across racial groups were as follows: Black (mean=14.60), White (mean=15.46), Mixed (mean=14.27), Indian (mean=15.89), Asian (mean=14.00), and Other (mean=35.00). A one-way analysis of variance (ANOVA) indicated that the difference in mean scores across race was significant (p-value = 0.012). This finding is most likely skewed by the one participant in the ‘Other’ racial group who attained a score of 35 on the BIDQ.

Mean scores attained across sexual orientation groups were as follows: Heterosexual (mean=14.98), Homosexual (mean=20.46), Bisexual (mean=17.29), and Other (mean=14.25). A

one-way analysis of variance (ANOVA) indicated that the difference in mean scores across sexual orientation was significant (p-value = 0.002). The effect size was found to be small (eta squared = 0.035).

Table 5.7  
*Analysis of mean scores of all participants (n=398) across demographic variables*

	n	Mean	Standard Deviation	T-test/ANOVA Sign. (p < 0.05)
Gender				<b>0.039 (eta sq. = 0.012)</b>
Male	60	13.87	6.215	
Female	338	15.50	5.514	
Race				<b>0.012</b>
Black	106	14.60	6.097	
White	270	15.46	5.308	
Mixed	11	14.27	6.710	
Indian	9	15.89	5.776	
Asian	1	14.00	N/A	
Other	1	35.00	N/A	
Sexual Orientation				<b>0.002 (eta sq. = 0.035)</b>
Heterosexual	364	14.98	5.515	
Homosexual	13	20.46	7.102	
Bisexual	17	17.29	5.687	
Other	4	14.25	3.862	

Note. n=number of participants.

## Findings on Adapted and Additional Items

The nature of clinical and associated features, as well as help-seeking behaviour, were examined by means of adapted follow-up items to original items of the BIDQ and additional items. These items are explorative with no established psychometric properties. Findings are presented in the form of frequency tables (Tables 5.8 - 5.18) for both the BDD group (n=13) and for all participants indicating clinically significant appearance concerns (n=71). Each table provides frequencies of responses to a specific adapted or developed item. Descriptions are not offered for the individual tables based on their self-explanatory nature. The findings are discussed in Chapter 6.

**Nature of clinical and associated features.** In this section findings are presented in the form of frequency tables pertaining to items examining the following: focus of appearance concerns (Table 5.8), time spent per day thinking about appearance concerns (Table 5.9), the nature of experienced distress (Table 5.10), the effect of BDD symptoms on social functioning (Table 5.11), the effect of BDD symptoms on academic functioning (Table 5.12), avoidance behaviours (Table 5.13), and the presence and nature of repetitive behaviours or mental acts (Table 5.14 & Table 5.15).

Table 5.8  
*Focus of appearance concerns (item 1b)*

	BDD group (n=13)		All participants indicating clinically significant appearance concerns (n=71)	
	n	%	n	%
Fingers and hands	3	23.1	6	8.5
Hips, buttocks and thighs	1	7.7	35	49.3
Waist and stomach	4	30.8	37	52.1
Cellulite and stretch marks	1	7.7	5	7
Chin and jaw	1	7.7	5	7
Skin (Acne, complexion, texture)	4	30.8	18	25.4
Overweight/body shape	0	0	15	21.1
Breasts and chest	2	15.4	14	19.7
Nose	4	30.8	14	19.7
Arms, shoulders and back	1	7.7	25	35.2
Teeth	3	23.1	4	5.6
Legs	1	7.7	24	33.8
Feet and toes	1	7.7	5	7
Hair	0	0	4	5.6
Face shape	5	38.5	11	15.5
Lips and cheeks	0	0	3	4.2
Height	0	0	4	5.6
Eyes and eyebrows, forehead	3	23.1	7	9.9
Ears	2	15.4	3	4.2
Scars, freckles, birthmarks, marks and moles	2	15.4	5	7
Dissatisfied with body overall	0	0	3	4.2
Other	1	7.7	3	4.2

Note. n=number of participants.

Table 5.9  
*Time spent per day thinking about appearance concerns (item 2b)*

	BDD group (n=13)		All participants indicating clinically significant appearance concerns (n=71)	
	n	%	n	%
Less than 1 hour	3	23.1	10	14.1
1-3 hours	2	15.4	19	26.8
3-5 hours	6	46.2	23	32.4
5-7 hours	0	0	9	12.7
More than 7 hours	2	15.4	9	12.7

Note. n=number of participants.

Table 5.10  
*Nature of distress (item 3b)*

	BDD group (n=13)		All participants indicating clinically significant appearance concerns (n=71)	
	n	%	n	%
I often feel depressed	8	61.5	52	73
I often feel anxious	7	53.8	42	59.2
I sometimes feel I don't want to live anymore	2	15.4	20	28.2
I often feel hopeless	6	46.2	31	43.7
I often feel disgusted	7	53.8	50	70.4
I often feel self-conscious	9	69.2	63	88.7
I often feel alone	4	30.8	26	36.6
I often feel a sense of guilt	0	0	25	35.2
I often feel a sense of shame	4	30.8	30	42.3
I often feel frustrated	9	69.2	49	69
I often feel angry	6	46.2	32	45.1
Other	4	30.8	9	5.7

Note. n=number of participants.

Table 5.11  
*Social functioning (item 5b)*

	BDD group (n=13)		All participants indicating clinically significant appearance concerns (n=71)	
	n	%	n	%
I engage in social interaction, but often feel very anxious while doing so	10	76.9	45	63.4
I feel self-conscious in social interactions	10	76.9	59	83.1
I am constantly aware of my appearance in social interactions	9	69.2	56	78.9
I feel that others are constantly evaluating my appearance negatively in social interactions	10	76.9	60	84.5
I only engage in social interaction at times that I feel less concerned about my appearance	4	30.8	20	28.2
I avoid social interaction with people I don't know	5	38.5	26	36.6
I avoid most forms of social interaction	2	23.1	10	14.1
I avoid intimate relationships	5	38.5	22	31
Other	1	7.7	4	5.6

Note. n=number of participants.

Table 5.12  
*Academic functioning (item 6b)*

	BDD group (n=13)		All participants indicating clinically significant appearance concerns (n=71)	
	n	%	n	%
I struggle to pay attention because I am focused on my physical 'defect'	3	23.1	18	25.4
I often do not attend classes	0	0	7	9.9
I often do not meet deadlines	2	15.4	8	11.3
I perform lower than I am capable of	5	38.5	23	32.4
I sometimes miss tests or exams	1	7.7	4	5.6
My academic functioning varies depending on how I currently feel about my appearance	3	23.1	22	31
I sometimes think about dropping out	3	23.1	16	22.5
Other	2	15.4	10	14.1

Note. n=number of participants.



Table 5.13  
*Avoidance behaviours (item 7b)*

	BDD group (n=13)		All participants indicating clinically significant appearance concerns (n=71)	
	n	%	n	%
Public places (I experience difficulty leaving my home)	4	30.8	18	25.4
Environments with reflective surfaces (e.g. malls, hair salons)	5	38.5	20	28.2
Unknown environments	1	7.7	16	22.5
Situations where my physical 'defect' is more visible to others	10	76.9	58	81.7
Other	1	7.7	7	9.9
Pools / beach / swimwear	0	0	1	1.4

Note. n=number of participants.

Table 5.14  
*Presence of repetitive behaviours or mental acts (item 8a)*

Repetitive behaviours or mental acts	BDD group (n=13)		All participants indicating clinically significant appearance concerns (n=71)	
	n	%	n	%
Present	13	100	66	93
Absent	0	0	5	7

Note. n=number of participants.

Table 5.15  
*Nature of repetitive behaviours or mental acts (item 8b)*

	BDD group (n=13)		All participants indicating clinically significant appearance concerns (n=71)	
	n	%	n	%
Excessive mirror checking	4	30.8	34	47.9
Excessive grooming	1	7.7	13	18.3
Attempting to camouflage my physical 'defect' (e.g. with make-up, clothing, accessories)	6	46.2	52	73.2
Asking others for reassurance regarding my physical 'defect'	5	38.5	33	46.5
Continuously comparing my appearance to that of others	12	92.3	63	88.7
Other	1	7.7	6	8.5

Note. n=number of participants

**Disclosure and help-seeking behaviour.** In this section findings are presented in the form of frequency tables pertaining to items examining the following: the disclosure of appearance concerns to others (Table 5.16), the type of professional help sought by those who have sought such help (Table 5.17), and the type of professional help participants would consider seeking (Table 5.18).

Table 5.16

*Disclosure of appearance concerns to others (item 9)*

	BDD group (n=13)		All participants indicating clinically significant appearance concerns (n=71)	
	n	%	n	%
No, I have no need to	0	0	1	1.4
No, I am not comfortable speaking to anybody about this	3	23.1	9	12.9
Yes, but only to those close to me	7	53.8	53	75.5
Yes, I readily speak to others about this	2	15.5	6	8.5

Note. n=number of participants.

Table 5.17

*Participants who have sought professional help and type of help sought (items 10a&10b)*

	BDD group (n=13)		All participants indicating clinically significant appearance concerns (n=71)	
	n	%	n	%
Have you ever sought professional help for your concerns with your physical 'defect'? (Yes)	5	38.5	28	39.4
Mental health care provider (e.g. psychologist, counsellor, psychiatrist)	3	23.1	16	22.5
Dermatologist	3	23.1	15	21.1
Cosmetic surgeon	2	15.4	7	9.9

Note. n=number of participants.

Table 5.18

*Type of professional help participants would consider seeking (item 10c)*

	BDD group (n=13)		All participants indicating clinically significant appearance concerns (n=71)	
	n	%	n	%
Mental health	7	53.8	33	46.5
Dermatologist	3	23.1	14	19.7
Cosmetic surgeon	3	23.1	20	28.2
Dietician	1	7.7	6	8.5
Gym / personal trainer	1	7.7	3	4.2

Note. n=number of participants.

## Chapter 6: Discussion and Conclusion

### Introduction

In this chapter the findings of the study are discussed with reference to the existing literature and, where relevant, to the cognitive-behavioural conceptual framework of BDD discussed in Chapter 3. This discussion is structured according to the research objectives outlined in Chapter 1, namely: the prevalence of BDD; the presence of repetitive behaviours or mental acts in those who screen positive for BDD; differences in prevalence of BDD and severity of appearance concerns across variables of gender, race, and sexual orientation; the nature of clinical and associated features; the impact of BDD symptoms on academic functioning in the university context; and help-seeking behaviour of those who screen positive for BDD. Thereafter the merits and limitations of the study are discussed, followed by recommendations for future research to conclude the study.

### Discussion of Findings

**Prevalence of BDD.** In the current study a BDD prevalence rate of 3.3% was found in a non-clinical student sample. This falls within the range of prevalence rates (2.3% to 5.8%) attained in similar studies conducted in Pakistan, Germany, China, America, Turkey, and Australia (Bartsch, 2007; Bohne, Keuthen, et al., 2002; Bohne, Wilhelm, et al., 2002; Boroughs et al., 2010; Cansever et al., 2003; Taqui et al., 2008; Zhu & Deng, 2010)

The prevalence rate reported in this study is, however, lower than the rate of 5.1% attained in a comparable South African study conducted at a different university (Dlagnekova, 2012). While this may suggest a difference in prevalence of BDD between these two universities, other factors that may have contributed to this difference should be taken into consideration.

Both the current study and Dlagnekova's (2012) study included an item to exclude those with a primary focus on weight from BDD prevalence findings. While the wording of these items was similar, the items differed in the response-style format. In the current study a dichotomous yes/no response format was utilized, while in Dlagnekova's study a Likert scale response format was employed. This meant that participants in Dlagnekova's study could select a 'neither agree nor disagree' option at the midpoint of the likert scale (in which case they were not excluded

from BDD prevalence findings), while participants in the current study had to provide a definitive yes or no response. Based on this, more participants may have been excluded from BDD prevalence findings in the current study. Another important difference between the studies which may have contributed to the discrepancy in prevalence findings was the sampling method employed. Dlagnekova employed a probability sampling method, while the current study utilized convenience sampling.

It should be noted that the prevalence rate of 3.3% attained in the current study may be lower than the true prevalence rate of BDD in the sample. Fifty-eight participants (14.6%) met the cut-off score for BDD but were not considered to screen positive for BDD based on their indication of a primary focus on weight concerns. The reason for exclusion was that such individuals may rather meet diagnostic criteria for an eating disorder. In the researcher's opinion, the item addressing whether the primary concern is weight-related is not sufficient to suggest an eating disorder diagnosis over a diagnosis of BDD. For this differential diagnosis to be more definitively examined further items or instruments would need to be included to assess features specific to eating disorders. While the DSM-5 (APA, 2013a) states as part of the diagnostic criteria for BDD that the appearance preoccupation should not be better explained by weight concerns in individuals who meet diagnostic criteria for an eating disorder, it also includes under the diagnostic features of BDD that the concern may be about any bodily area with 'weight' listed as an example. Thus, some individuals excluded due to a primary focus on weight may still have met the criteria for BDD.

**Presence of repetitive behaviours or mental acts.** All participants who screened positive for BDD on the BIDQ in the current study reported that they engage in repetitive behaviors or mental acts in response to their appearance concerns. This is an important finding for a number of reasons. Firstly it suggests that participants screening positive for BDD in the current study meet the recently developed DSM-5 diagnostic criteria for BDD which includes an additional criterion addressing repetitive behaviours or mental acts in BDD (APA, 2013a). Secondly, this finding supports the prominence and importance of this clinical feature in BDD as outlined in the literature (Phillips & Feusner, 2010; Phillips et al., 2010). Lastly, this finding suggests that the BIDQ may remain a valid and reliable self-report measure to screen for the

presence of BDD despite its development being based on DSM-IV-TR diagnostic criteria (APA, 2000). Given that this finding relates to a relatively small group of participants screening positive for BDD in the current study (n=13), further research would be needed to confirm the continued clinical utility of the BIDQ in screening for the presence of BDD. Alternatively, an adaptation could be made to the instrument such that the aforementioned clinical feature of BDD is examined and included in the scoring.

### **Differences in BDD prevalence and experienced severity across gender, race, and sexual orientation.**

**Gender.** In the current study no statistically significant association was found between the presence of BDD and participants' gender, suggesting that male and female students in the target population are equally affected by BDD. This is in support of findings reported by Zhu and Deng (2010) in a study of BDD prevalence among students in China, as well as findings reported by Dlagnekova (2012) in a study of BDD prevalence among students at a different South African university. This finding is, however, in contrast to findings in student populations where higher prevalence rates were reported among female students than male students (Bartsch, 2007; Bohne, Wilhelm, et al., 2002; Boroughs et al., 2010).

Furthermore, differences in the experienced severity of symptoms among males and females who screened positive for BDD were not found to be significant. This, too, is in accordance with the findings of Zhu and Deng (2010) and Dlagnekova (2012). Other studies examining the experienced severity of BDD symptoms in student populations found higher severity levels in female students than male students (Bartsch, 2007; Bohne, Keuthen, et al., 2002; Boroughs et al., 2010). An interesting finding in the current study was that, across the sample as a whole, the severity of experienced appearance concerns was significantly higher among female students than male students. The effect size for this finding was, however, small.

While results pertaining to differences in BDD prevalence among male and female students remain somewhat inconclusive when considering all studies conducted to date, findings from the current study and Dlagnekova's (2012) study suggest that male and female students in

the South African context are equally affected by BDD, both in terms of prevalence and the experienced severity of the disorder.

**Race.** A statistically significant difference in BDD prevalence across racial groups was found with a medium effect size in the current study. The highest prevalence rate was found in ‘Mixed’ race participants (18.2%), followed by ‘Indian’ participants (11.1%), ‘Black’ participants (5.7%), and lastly ‘White’ participants (1.5%). There were no ‘Asian’ or ‘Other’ participants who screened positive for BDD. This finding should be interpreted with caution due to a very small representation of ‘Mixed’ (n=11) and ‘Indian’ (n=9) racial groups in the sample.

This finding is in stark contrast to findings in other studies of student populations which included race or ethnicity as a variable. Two such studies found BDD to be most prevalent among white students in Australian and American populations (Bartsch, 2007; Boroughs et al., 2010). Dlagnekova (2012) found no significant difference in BDD prevalence across racial groups among students at a different South African university.

In terms of the experienced severity of BDD symptoms in those screening positive for BDD, the greatest severity was found in white students, followed by Indian students, then black students, and lastly mixed race students. This finding was, however, not found to be statistically significant. Bartsch (2007) and Boroughs et al. (2010) also found severity of BDD symptoms to be highest among white students.

Findings regarding differences in BDD prevalence across racial groups therefore remain inconclusive. While the current study evidences significant differences in prevalence across racial groups, the findings are in contrast to those in another South African student population (Dlagnekova, 2012). The finding in the current study is limited by small representations of certain racial groups. Further research would be needed to either support or refute the current findings. There does, however, seem to be a general trend in research to date that white students experience more severe BDD symptoms than students of other racial groups (Bartsch, 2007; Boroughs et al., 2010). While this was evident in the findings of the current study, it was below the level of statistical significance.



**Sexual orientation.** The highest prevalence rate of BDD was found in homosexual students (7.7%), followed by bisexual students (5.9%), and lastly heterosexual students (3%). The difference in prevalence across these groups was, however, below the level of statistical significance. This is in accordance with findings of both Dlagnekova (2012) and Boroughs et al. (2010) where the highest BDD prevalence rates were found in gay or lesbian students, but these findings also lacked statistical significance. The finding in the current study should also be interpreted with caution due to relatively small representations of both homosexual (n=13) and bisexual (n=17) students in the sample.

A noteworthy finding in the current study was that homosexual students evidenced the highest mean scores on the BIDQ across sexual orientation groups among those screening positive for BDD (n=13), as well as among the larger group of all participants scoring 21 or above (n=71), and the whole sample (n=398). In all instances the difference in mean scores between sexual orientation groups was statistically significant, with large effect sizes found in the BDD group and the larger group of all participants indicating clinically significant appearance concerns. This suggests that homosexual students meeting the criteria for BDD experience greater severity of symptoms than heterosexual or bisexual students. Furthermore, homosexual students who do not meet the criteria for BDD also appear to experience greater severity of appearance concerns than other sexual orientation groups.

While all three studies, including the current study, that have examined differences in BDD prevalence across the variable of sexual orientation in student populations have found the highest prevalence rate in homosexual participants, this finding continues to lack statistical significance (Boroughs et al., 2010; Dlagnekova, 2012). Further research is needed to empirically explore this trend. There is, however, strong evidence in the current study to suggest that homosexual students experience the greatest degree of severity in appearance concerns, and therefore may be a group that is particularly vulnerable to developing appearance-related psychiatric disorders.

**Nature of clinical and associated features.** The most commonly reported focus of appearance concern in the group screening positive for BDD in the current study was the face and aspects thereof; including the skin (acne, complexion texture), facial shape, nose, teeth,

eyes/eyebrows, and forehead. This finding is in accordance with literature stating that perceived facial defects are the most common foci of concern in individuals with BDD (Mackley, 2005; Phillips & Diaz, 1997).

The level of preoccupation with perceived defects was measured in the current study by asking participants to estimate how much time is spent per day thinking about the features of concern. The majority of participants screening positive for BDD reported spending three to five hours a day thinking about the perceived defects, with a few participants who reported spending more than seven hours a day thinking about appearance concerns. Similarly, Phillips (2004) found that preoccupations in individuals with BDD consume an average of three to eight hours a day. In Veale's (2004) cognitive-behavioural model of BDD the time-consuming nature of preoccupations in BDD is accounted for by specific cognitive processes such as fixed selective and self-focused attention, negative appraisals of a distorted mental image, and ongoing comparisons to an internal or external ideal image.

The nature of experienced distress in BDD was explored in the current study in terms of frequently experienced distressing feelings in response to appearance concerns. Commonly reported feelings in the BDD group were those of depression, anxiety, hopelessness, disgust, self-consciousness, frustration, and anger. This finding concurs with the potential emotional experiences associated with BDD as outlined in Veale's (2004) cognitive-behavioral model. Such emotions are understood within this model to stem from the various cognitive and behavioural processes specific to BDD, with the associated emotional arousal serving to increase the frequency and intensity of the individual's negative appraisals of body image. This then contributes to the maintenance of BDD symptoms by creating a feedback loop.

Furthermore, 15.4% of the BDD group and 28.2% of the larger group evidencing significant appearance concerns reported feelings of not wanting to live anymore. Phillips (2007) indicated rates of suicidal ideation to be as high as 80% in patients with BDD over a lifetime course. While the rate of suicidal ideation attained in the current study may seem lower than that outlined in the literature, it may be a reflection of the cross-sectional methodology of the study that limits the assessment of suicidal ideation to a specific point in time, and does not account for fluctuations in the experienced severity of BDD.

In terms of impairment in social functioning, the large majority of participants who screened positive for BDD reported high degrees of anxiety in social contexts, constant self-awareness of appearance in social contexts, and feeling that others are negatively evaluating their appearance in social interactions. This is in accordance with literature suggesting that individuals with BDD believe that their appearance is being scrutinized by others in social settings, thereby contributing to heightened social anxiety (Cororve & Gleaves, 2001; Phillips, 1991).

Understanding this within a cognitive-behavioral model of BDD, it seems that the focus of attention in social settings is both external on the perceived negative evaluation by others, and internal on the distorted mental image (Veale, 2004). Almost 40% of the BDD group reported avoiding social interaction with unknown individuals and avoiding intimate relationships. This finding is also described in literature stating that individuals with BDD may become somewhat isolated, and may avoid dating and other forms of social interaction (Phillips, 2004).

The most prominent avoidance behaviour reported by the BDD group in the current study was the avoidance of any situation where the appearance ‘defect’ is more visible to others. Avoidance of people, places, or situations where the individual’s appearance may be the focus of evaluation by others is a typical feature of BDD (Fang et al., 2014). Furthermore, about 30% of the BDD group reported difficulty leaving the home and almost 40% of the group reported avoidance of environments with reflective surfaces. Literature suggests that it is not uncommon for individuals with BDD to become completely housebound for periods of time (Phillips et al., 1994). The avoidance of reflective surfaces is described in literature with reference to the heterogeneous nature of BDD symptoms. While some sufferers may spend hours a day examining their appearance in the mirror, others may completely avoid reflective surfaces (Crerand et al., 2006).

Another clinical feature explored in the current study was the repetitive behaviours or mental acts in response to appearance preoccupations in BDD. Almost all individuals in the BDD group reported the continuous comparison of their appearance to that of others. Social comparison forms an integral component of Veale’s (2004) cognitive behavioural model of BDD. Veale et al. (2003) found that individuals with BDD had significantly higher discrepancies than healthy controls between the characteristics they believed to actually possess and the

characteristics they would ideally hope to possess. This large discrepancy between the ‘actual’ and ‘ideal’ self may explain the heightened degree of appearance comparisons engaged in by BDD sufferers (Veale, 2004). Other prominent repetitive behaviours reported by the BDD group in the current study were excessive mirror checking, attempting to camouflage the physical ‘defect’, and asking others for reassurance regarding the appearance concern. These have all been found to be typical repetitive behaviours engaged in by BDD sufferers (APA, 2013a).

**Effect of BDD symptoms on academic functioning in the university context.** Almost 40% of participants who screened positive for BDD in the current study reported that they perform lower than their capabilities due to their appearance preoccupations. This may be due to impairment in attention and concentration resulting from heightened focus on appearance concerns. Almost 25% of the BDD group indicated this as a difficulty in their academic functioning. There also appears to be fluctuation in academic performance based on the current experienced severity of BDD symptoms, with almost 25% of the BDD group reporting that their academic functioning varies depending on how they currently feel about their appearance. Furthermore, about 15% of the BDD reported often not meeting deadlines, almost 8% reported missing tests or exams due to appearance concerns, and almost 25% reported thoughts of dropping out of their studies. It seems that BDD significantly impairs students in their academic role functioning, and such students may need additional support in this regard.

These findings may be understood within Veale’s (2004) cognitive-behavioural model of BDD discussed in Chapter 3. This model proposes that BDD elicits a number of continuous and effortful cognitive processes such as fixed selective and self-focused attention, and ongoing negative appraisals related to distorted mental imagery. Such cognitive processes significantly decrease an individual’s attentional and cognitive capacity for functioning within his/her role and often make it very difficult to process any other external information. This may be particularly impairing in the academic context where cognitive and attentional demands are usually very high.

**Help-seeking behaviour.** About half of the BDD group in the current study reported only disclosing their appearance concerns to those close to them, with almost 25% of BDD participants indicating that they are not comfortable speaking to anybody about their appearance

concerns. This is in accordance with literature that suggests a high degree of secrecy in individuals with BDD regarding their symptoms (Neziroglu & Yaryuru-Tobias, 1997; Phillips, 1991). This poses a particular barrier to such individuals seeking treatment. A sense of shame has been found to be a significant factor in individuals with BDD not seeking treatment (Buhlmann, 2011). This warrants a need for increased awareness and de-stigmatisation of this disorder in populations where it is still associated with high degrees of secrecy and shame.

Only about 40% of the BDD group reported ever having sought any form of professional help. Some of these participants have sought help in more than one professional avenue. About 20% of the BDD group reported having sought help from mental health care providers and from dermatologists. Furthermore, 15% of this group reported having sought help from cosmetic surgeons. This is in accordance with literature suggesting that many BDD sufferers seek cosmetic or dermatological interventions versus psychological or psychiatric interventions based on a strong conviction that their appearance concerns are real (Buhlmann, 2011). This is problematic given that findings in the literature suggest only 2.3% of BDD sufferers who have sought surgical or minimally invasive procedures show any improvement in BDD symptoms in the long term (Crerand et al., 2010).

An additional item was included to explore avenues whereby participants in the BDD group would consider seeking professional help in cases where no such help had been sought. This finding is interesting and somewhat promising in that just over 50% of participants reported that they would consider seeking help from mental health care providers. This is a significantly higher percentage than the 25% odd who reported they would consider seeking help from dermatologists and cosmetic surgeons. This finding may however be a reflection of sample characteristics, where psychology students in the sample may demonstrate an increased awareness of BDD and the appropriate treatment thereof. There may also have been a degree of priming in that participants were aware that this study was based in the psychology department, and therefore may have considered the seeking of help from mental health care professionals as the most appropriate response. Unfortunately, the consideration of appropriate professional avenues of treatment by participants does not ensure that such treatment will be sought.

## Merits and Limitations of the Current Study

**Merits.** Although this study was not the first of its kind to be conducted in the South African context, it explored a number of additional aspects of BDD that were not explored in Dlagnekova's (2012) study. These included the nature of clinical features and functional impairment in the specific context, the impact of BDD on academic functioning, and help-seeking behaviour of those who screened positive for BDD. While most similar prevalence studies conducted to date have only examined differences in prevalence across gender, the current study examined differences across gender, race, and sexual orientation. For these reasons the findings of this study provide a contribution to the existing body of BDD research, particularly in the South African context.

The current study also has a number of methodological merits. A relatively large sample was attained to address the limitation posed by the use of small samples in a number of other similar BDD prevalence studies. The instrument used in the current study to measure prevalence, namely the BIDQ, has well established psychometric properties and was developed to improve on limitations of other existing instruments. The researcher developed an item to address the additional BDD diagnostic criterion included in the recently published DSM-5 (APA, 2013a). Furthermore, the survey was conducted online. This means that individuals who may not have been present in the classroom environment were not excluded from the study. This is particularly important when studying BDD, as sufferers may experience periods of being housebound. The online nature of the study also allowed for greater anonymity of the participants.

**Limitations.** The use of convenience sampling in the current study poses the most significant limitation. This means that the sample attained may not have been an accurate representation of the broader target population, thereby limiting the generalisability of the findings. Attempts were made by the researcher to attain as diverse a sample as possible by inviting all departments within the Humanities faculty at the specific university to participate in the study. Unfortunately a number of demographic groups were not well represented in the study. Thus all findings should be interpreted with this limitation in mind. Furthermore, while the employment of online sampling may be viewed as a particular merit of this study, it also poses

the limitation of possible response bias. It may be that individuals who respond to online surveys share specific characteristics which motivate them to respond to such surveys.

Another limitation lies in the use of a self-report instrument to measure the prevalence of BDD. This only allows for the screening of participants for the presence of BDD. To make a clinical diagnosis it would be necessary to clinically interview the participants in order to establish that the appearance concerns are in fact exaggerated, and that no other differential diagnosis would be more appropriate. Furthermore, the item included to exclude participants from the BDD group who indicated a primary concern with weight may not be sufficient to suggest that such individuals do not meet the diagnostic criteria for BDD and may rather meet the criteria for an eating disorder. While the inclusion of this item was borrowed from the methodology of other similar studies, the researcher is of the opinion that additional items or instruments should be included to more thoroughly explore differential diagnoses.

Finally, the researcher developed a number of additional items to include in the instrument in order to assess other aspects of BDD as outlined under the merits of the study. Such items lack any established psychometric properties and therefore the findings should be interpreted as descriptive and exploratory. The development of these items was, however, based on existing literature.

### **Recommendations for Future Research**

With regard to the limitations posed within this study, future studies examining prevalence of BDD should employ methods of probability sampling to increase the generalisability of findings. Given that some findings in the current study were limited by small representations of particular demographic groups, attempts should be made in future studies to adequately represent all demographic groups of study. With reference to the finding in the current study that there are significant differences in BDD prevalence across racial groups, of which some groups were not well represented, further studies are needed to either support or refute this finding.

To address the limitation posed by the use of self-report measures in examining BDD prevalence, participants screening positive for BDD in future studies could be invited to attend

an interview conducted by a clinician to confirm the diagnosis. This, of course, would require a number of ethical considerations. Such an interview would also prove valuable in being able to more adequately assess whether the symptoms presented are better accounted for by another diagnosis, such as an eating disorder.

While this is the second study of BDD prevalence conducted on a student sample in the South African context, further studies are needed in South Africa to examine BDD prevalence in general community populations and in clinical populations. This will allow for a broader knowledge of the extent of this disorder in the South African context.

Three studies, inclusive of the current study, have found higher prevalence rates of BDD in homosexual individuals than other sexual orientation groups, despite these findings lacking statistical significance. Furthermore, the current study found greater severity of BDD symptoms and general appearance concerns in homosexual participants than in other sexual orientation participants across all groups of participants that were examined. This finding was statistically significant. This may warrant further studies examining the association between BDD and sexual orientation. Qualitative studies may be particularly useful in gaining a better understanding of why homosexual individuals appear to be more vulnerable to heightened appearance concerns and the development of BDD.



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## Appendix A

### Letter of informed consent

#### The Body Image Study

Dear UP Student,

**Please note that by clicking "NEXT" at the bottom of this page, and completing the short questionnaire, you are providing informed consent to participate in this study based on the information below.**

Thank you for your interest in this study. I am conducting research on body image concerns among students registered for subject modules within the Humanities Faculty at the University of Pretoria in partial fulfillment of the requirements for my degree. This study aims to identify how frequently such concerns occur, which groups may be particularly at risk for such concerns, and how such concerns may impact on one's functioning in various contexts. The results of this study will aid in improving prevention and treatment practices, and will be made available to student support services and the academic community. Completing this online questionnaire will not take more than 10 minutes of your time.

The questionnaire is divided into two parts; the first part consisting of a number of demographics questions, and the second part consisting of a number of questions on how you view your appearance and the effects this may have on your functioning in various contexts. Your identity will remain anonymous and all information will be treated as confidential. Data attained in this study will be stored securely at the Department of Psychology at the University of Pretoria for a period of 15 years before being destroyed. Data may be used for future research. Your participation in this study is completely voluntary, and you may withdraw from the study at any time without any negative consequences by clicking the 'exit this survey' button at the top of the screen. Should you wish to participate, please complete the following questionnaire as honestly as possible.

Should you have any questions or concerns, please do not hesitate to contact me at mattmully1984@gmail.com. Alternatively, you may contact my supervisor, Dr Linda M Eskell Blokland at linda.blokland@up.ac.za. Should you feel that you need to speak to someone regarding

difficulties you may be experiencing in relation to the content of this study, please contact the Counselling Division of Student Support at the Department of Student Affairs on 012 420 2333. The Department of Student Affairs is located next to the Student Centre and opposite the Tukkieurf entrance on the University of Pretoria's Hatfield campus. Office hours are from 07H30 to 15H30. This is a free service for registered students.

Thank you in advance for your participation.

Sincerely,

Matthew Mulholland

## Appendix B

### Part 1 – Demographic Questions

*Please complete all items in this section.*

1. What is your age (in years)?
  
2. What degree are you currently registered for?
  
3. What is your current academic year (e.g. 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup> year)?
  
4. What was your first year of registration at the University of Pretoria (e.g. 2011)?
  
5. From which subject/module did you access the link to this study on ClickUp (e.g. SLK 110)?
  
6. What is your gender?
  - Male
  - Female
  - Other (Please specify)
  
7. What is your race?
  - Black
  - White
  - Indian
  - Mixed
  - Asian
  - Other (Please specify)
  
8. What is your sexual orientation?



- Heterosexual/straight
- Homosexual/gay
- Bisexual
- Other (Please specify)

9. What is your relationship status?

- Single
- Married
- In a relationship
- Other (Please specify)

## Appendix C

### Part 2 – Body Image Questions

#### (Body Image Disturbance Questionnaire with adapted and additional items)

*These questions assess concerns about physical appearance. Please read each question carefully and answer in the way that best describes your experience. Some questions require an answer and are marked with an asterisk\*. Please complete these marked questions even if you feel they do not apply to you. Questions not marked with an asterisk do not need to be completed if they do not apply to you.*

1(a). Are you concerned about the appearance of some part(s) of your body, which you consider particularly unattractive? (Select the best answer)

1	2	3	4	5
Not at all concerned	Somewhat concerned	Moderately concerned	Very concerned	Extremely concerned

1(b). If so, what part(s) of your body are you most concerned with, and what about these parts concerns you? E.g. my nose is too big (You may list up to 5 parts, starting with the part that concerns you the most)

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

1(c). Is your main concern with appearance that you aren't thin enough or that you might become too fat?

Yes

No

1(d). Is your main concern with appearance that your body build is too small or that you are not muscular enough?

Yes

No

2(a). If you are at least somewhat concerned about the appearance of some part(s) of your body, do these concerns preoccupy you? That is, do you think about them a lot and they're hard to stop thinking about? (Select the best answer)

1	2	3	4	5
Not at all	Somewhat	Moderately	Very	Extremely
preoccupied	preoccupied	preoccupied	preoccupied	preoccupied

2(b). If so, how much time do you spend on average per day thinking about these concerns?

Less than 1 hour

1-3 hours

3-5 hours

5-7 hours

More than 7 hours

3(a). Has your physical “defect” often caused you a lot of distress, torment, or pain? How much? (Select the best answer)

1	2	3	4	5
No distress	Mild, and not too disturbing	Moderate and disturbing but still manageable	Severe, and very disturbing	Extreme, disabling

3(b). If so, how would you describe this distress, torment, or pain? (Select one or more of the following)

- NOT APPLICABLE
- I often feel depressed
- I often feel anxious
- I sometimes feel I don't want to live anymore
- I often feel hopeless
- I often feel disgusted
- I often feel self-conscious
- I often feel alone
- I often feel a sense of shame
- I often feel a sense of guilt
- I often feel frustrated
- I often feel angry
- Other (Please specify)

4. Has your physical “defect” caused you impairment in social, occupational, or other important areas of functioning? How much? (Select the best answer)

1	2	3	4	5
No limitation	Mild interference, but overall performance not impaired	Moderate, definite interference but still manageable	Severe, causes substantial impairment	Extreme, incapacitating

5(a). Has your physical “defect” significantly interfered with your social life? How much? (Select the best answer)

1	2	3	4	5
Never	Occasionally	Moderately often	Often	Very often

5(b). If so, how? (Select one or more of the following)

- NOT APPLICABLE
- I engage in social interaction, but often feel very anxious while doing so
- I feel self-conscious in social interactions
- I am constantly aware of my appearance in social interactions
- I feel that others are constantly evaluating my appearance negatively in social interactions
- I only engage in social interaction at times that I feel less concerned about my appearance
- I avoid social interaction with people I don’t know
- I avoid most forms of social interaction
- I avoid intimate relationships
- Other (Please specify)

6(a). Has your physical “defect” significantly interfered with your studies, your job, or your ability to function in your role? How much? (Select the best answer)

1	2	3	4	5
Never	Occasionally	Moderately often	Often	Very often

6(b). If so, how? (Select one or more of the following)

- NOT APPLICABLE
- I struggle to pay attention because I am focused on my physical ‘defect’
- I often do not attend classes
- I often do not meet deadlines
- I perform lower than I am capable of
- I sometimes miss tests or exams
- My academic functioning varies depending on how I currently feel about my appearance
- I sometimes think about dropping out
- Other (please specify)

7(a). Do you ever avoid things because of your physical “defect”? How often? (Select the best answer)

1	2	3	4	5
Never	Occasionally	Moderately often	Often	Very often

7(b). If so, what do you avoid? (Select one or more of the following)

- NOT APPLICABLE
- Public places (I experience difficulty leaving my home)
- Environments with reflective surfaces (e.g. malls, hair salons)
- Unknown environments
- Situations where my physical ‘defect’ is more visible to others
- Other (please specify)

8(a). Do you engage in repetitive behaviours or mental acts as a result of your concern with your physical ‘defect’ (e.g. excessive mirror checking, skin picking, excessive grooming, trying to camouflage the ‘defect’, reassurance seeking, continuously comparing your appearance to that of others)?

- Yes
- No

8(b). If so, what repetitive behaviours or mental acts do you engage in? (Select one or more of the following)

- NOT APPLICABLE
- Excessive mirror checking
- Excessive grooming
- Skin picking
- Attempting to camouflage my physical ‘defect’ (e.g. with make-up, clothing, accessories)
- Asking others for reassurance regarding my physical ‘defect’
- Continuously comparing my appearance to that of others
- Other (please specify)

9. Have you ever spoken to others in your life about your concerns with your physical ‘defect’? (Select one of the following)

- NOT APPLICABLE
- No, I have no need to
- No, I am not comfortable speaking to anybody about this
- Yes, but only to those close to me
- Yes, I readily speak to others about this
- Other (please specify)

10(a). Have you ever sought professional help for concerns with your physical ‘defect’?

- Yes
- No

10(b). If so, what professional help have you sought? (Select one or more of the following)

- NOT APPLICABLE
- Mental health care provider (e.g. psychologist, counsellor, psychiatrist)
- Dermatologist
- Cosmetic surgeon
- Other (please specify)



10(c). If you feel you may need professional help, but have not sought such help, where would you consider seeking professional help? (Select one or more of the following)

- NOT APPLICABLE
- Mental health care provider (e.g. psychologist, counsellor, psychiatrist)
- Dermatologist
- Cosmetic surgeon
- Other (please specify)

**You have reached the end of the questionnaire. Thank you for your participation. Please click on "DONE" below to submit your questionnaire.**

**Please do not hesitate to contact the Counselling Division of Student Support at the Department of Student Affairs should you need to speak to a professional regarding issues raised in this questionnaire on 012 420 2333.**